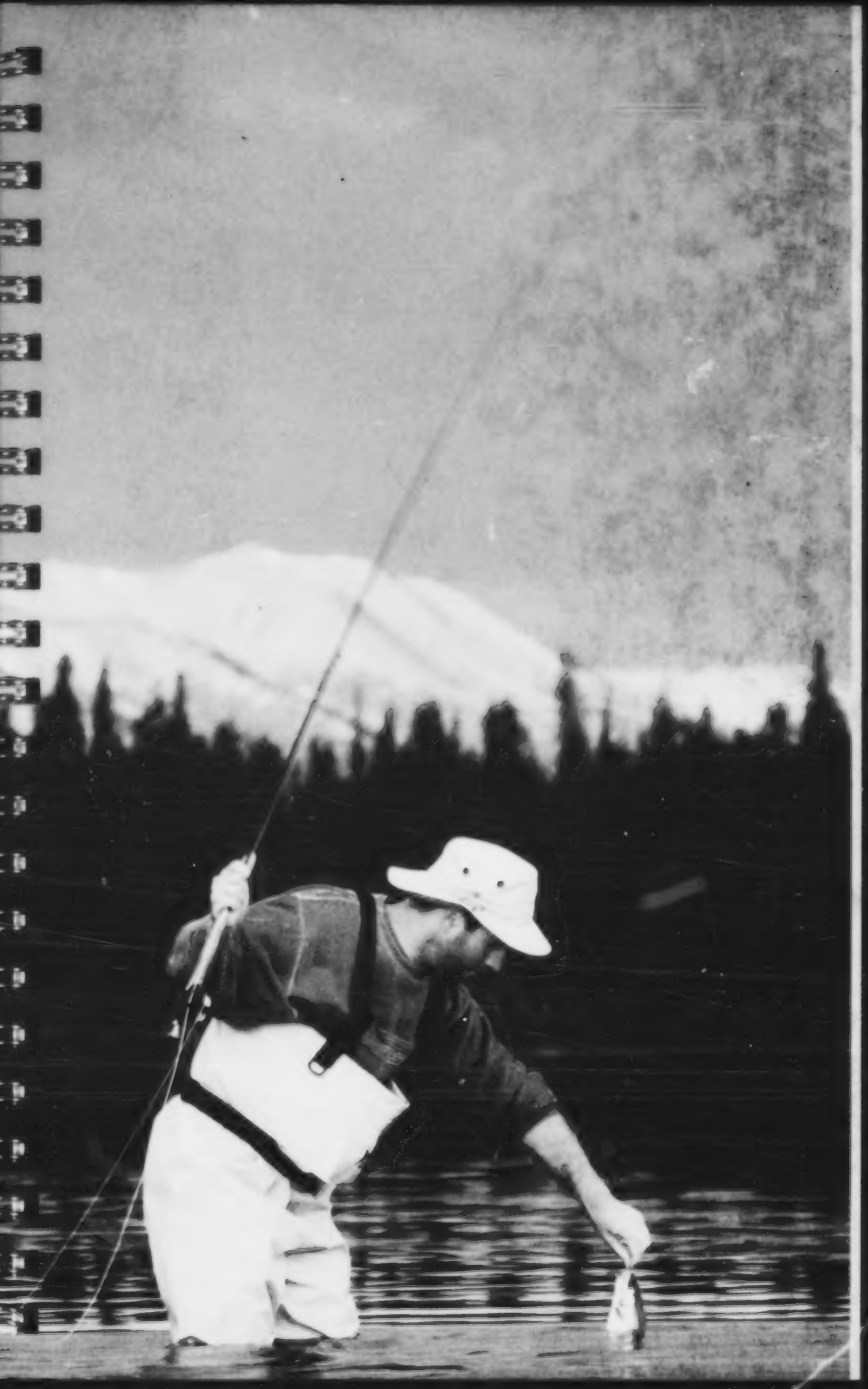

Freshwater

Fisheries Program Plan

PROVINCE OF BRITISH COLUMBIA
MINISTRY OF ENVIRONMENT
2007

www.env.gov.bc.ca/esd

BRITISH COLUMBIA
The Best Place on Earth

Photo cover - Ted Zimmerm
Photo - Chris Ce

Foreword by the Assistant Deputy Minister

British Columbia is home to an incredible fisheries resource. It is fundamental to our economy and our way of life and we must work hard to protect it for generations to come. One of the Five Great Goals of the Provincial Government is to make British Columbia's fisheries management the best, bar none. To help us achieve this Goal we have developed a comprehensive Program Plan for Freshwater Fisheries. This Plan provides clear direction on Program Priorities to help guide our collective decision making going forward. By tying specific activities to our Priorities we feel the Plan will be useful in building an understanding of the Program and how each of you, and our various partners, contribute to its delivery.

The Aim of the Program is **a naturally rich and sustainable freshwater fish resource supporting diverse uses for all British Columbians**. To that end, we have placed significant importance on defining the status of key species and stocks, obtaining and using the best available science to advise on resource management alternatives and establishing effective planning and recovery processes to preserve this wonderful resource. To achieve our Aim, we must effectively balance the need to conserve wild stocks while optimizing recreational opportunities for British Columbians and those who visit our beautiful province. We are confident that our management policies and practices will strike the right balance and continue to make British Columbia fisheries management the best, bar none.

In reading this Plan, you see the tremendous effort that the Fisheries Program Policy Team and other staff members have put into its creation and I thank them for that. They have presented a coherent Plan that details the activities that the Ministry, our partners and others will need to undertake to successfully deliver it. It is not expected that all of these activities will be completed within the year. Instead, the Plan provides us with the direction that will enable those involved in its delivery to take forward their responsibilities now and into the future.

This document was written for our employees, however, we do recognize that others, both inside and outside of government are interested in what we do. So, whether you are one of our staff, a partner or a member of the public, I hope that you find our Plan informative and share the optimism that the Ministry has in its delivery.

Nancy Y. Wilkin

Nancy Wilkin

Photo - Ted Zimmerman

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Introduction

British Columbia is a world renowned fishing destination – supporting a wide variety of recreational and angling opportunities within our many lakes, rivers, and streams. Wild fish populations play a critical role in maintaining such a desired destination. They are the foundation of significant social, economic and environmental benefits to the Province. Fishing provides many of these tangible and intangible benefits such as the cultural and societal needs of First Nations and employment for residents and direct and indirect revenue to the communities in which they live. Fishing is also recognized as an activity that provides therapeutic benefits by reducing stress and drawing individuals and families to the healthy outdoors. Fish are a critical element of well-functioning and healthy aquatic ecosystems, acting as a benefactor and indicator of watershed health. As such, there is a shared responsibility for all orders of government to work with British Columbians to protect and conserve this fishery resource for the benefit of all generations.

FRESHWATER FISHERIES PROGRAM PLAN

The province of British Columbia has set a goal to be recognized for providing the "Best Fisheries Management, Bar None," and the Ministry of Environment has a leading role in achieving this goal for the freshwater fisheries resource. The management of British Columbia's freshwater fisheries is a challenging task, primarily due to the large number of species to maintain and vast geographical landscape to cover. Many of these species show valuable variations in appearance and life history traits due to the marked geographic variation in B.C.'s geology, habitat and climate. There is also complexity resulting from overlapping jurisdictional responsibilities for the management of freshwater fish and their habitat.

We are increasingly relying on partners, external to government to deliver key elements of the Program. A succinct description of our Program is needed to help guide these various partners and stewardship groups. This Freshwater Fisheries Program Plan (hereinafter referred to as the "Program Plan") was developed to bring clarity of direction, definition of roles, and visibility of contribution to the activities associated with managing B.C.'s freshwater fisheries.

The primary purpose of this Program Plan is to assist Freshwater Fisheries Program staff in prioritizing their efforts, and coordinating the activities of Program partners involved in providing British Columbians with the best fisheries management. We have written this Plan to be accessible, insightful, and easy to read. It is organized around our high level Goals and Priorities and sets out what we will be doing and why, over the next three to five years.

Photo - Mark Laynes

MANAGING BRITISH COLUMBIA'S FISHERIES RESOURCE

The Ministry has, through delegated authority under the federal *Fisheries Act*, responsibility for the Province's non-salmon freshwater fisheries which also includes sea-run steelhead, cutthroat and Dolly Varden. In this capacity, the Ministry has the lead on freshwater fish governance, conservation and recreation. The licensing of freshwater recreational fishing is enabled under the Province's *Wildlife Act*. The Freshwater Fisheries Society of B.C. (FFSBC) was established by the Ministry to deliver the Province's freshwater stocking program and take the primary role in the promotion and education related to recreational fishing. The provincial government has primary responsibility for land and water use decisions on Crown lands and utilizes a variety of statutes to sustainably manage fish habitat and other environmental values.

The federal Department of Fisheries and Oceans (DFO) is responsible for First Nation fisheries, commercial and recreational fisheries in tidal waters, salmon fisheries in non-tidal waters and has the lead responsibility for fish habitat protection. The Ministry of Environment plays an active and influential role in the management of Pacific marine (tidal) fisheries to ensure that provincial objectives and stakeholder concerns are reflected in federal policies.

	Responsibilities	
Area	Department of Fisheries & Oceans	Ministry of Environment
First Nation Fisheries	Management* responsibilities under *Fisheries Act*	Provide input on provincial values to treaty and fisheries management planning
Commercial Fisheries (Non-tidal)	Management* responsibilities and licensing under *Fisheries Act*	Provide input on provincial values and fisheries management planning
Recreational Fisheries (Tidal)	Management* responsibilities and licensing under *Fisheries Act*	Influence management decisions, support development and promotion of fishery
Recreational Fisheries (Non-tidal)	Management* responsibilities under *Fisheries Act* for salmon fishery	– Management responsibilities under *Fisheries Act* for all species except salmon – Licensing responsibility under *Wildlife Act* for freshwater angling including salmon
Fish Hatcheries	Delivery of salmon stocking programs and support for sea-run trout programs in some cases	Through FFSBC, delivery of freshwater fish and sea-run trout stocking programs and conservation fish culture projects
Fish Habitats	Responsibility under *Fisheries Act* for fish habitat protection	– Advise DFO on habitat matters regarding freshwater fish – Water management under *Provincial Water Act* – Manages land use impacts such as those from forestry under *Forest and Range Practices Act* – Riparian protection in urban areas under *Fish Protection Act*

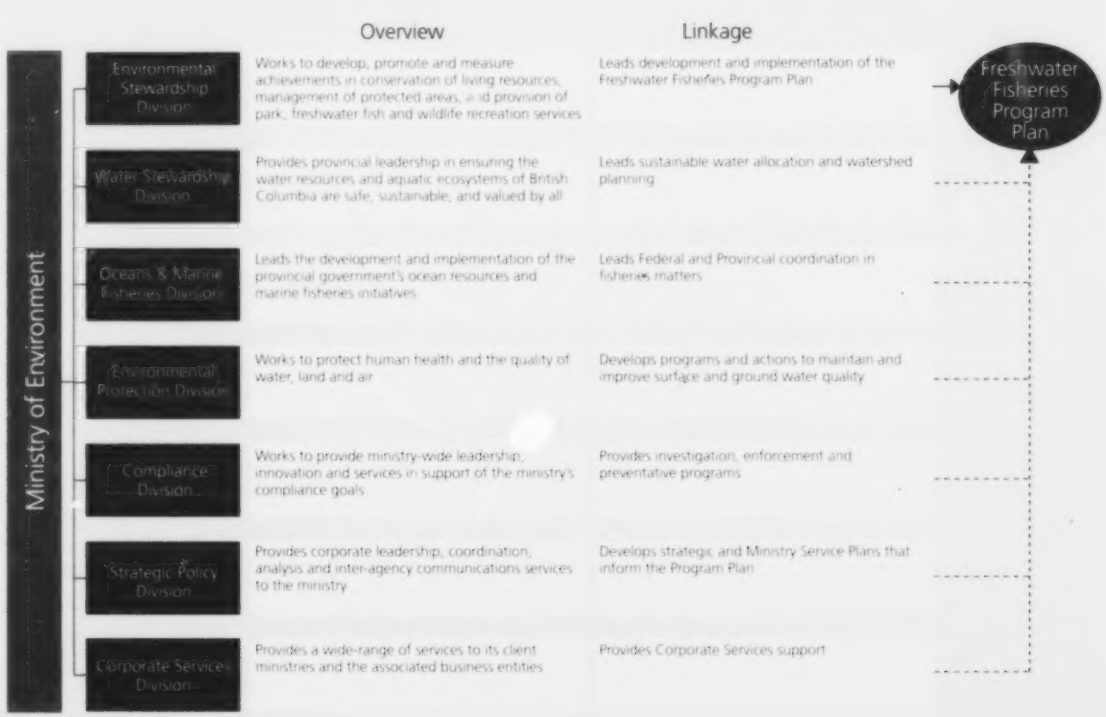
* Management responsibilities include setting openings and closings, determining total allowable catch limits and allocations decisions

Photo - Jeff Goodwin

Delivering the Freshwater Fisheries Program

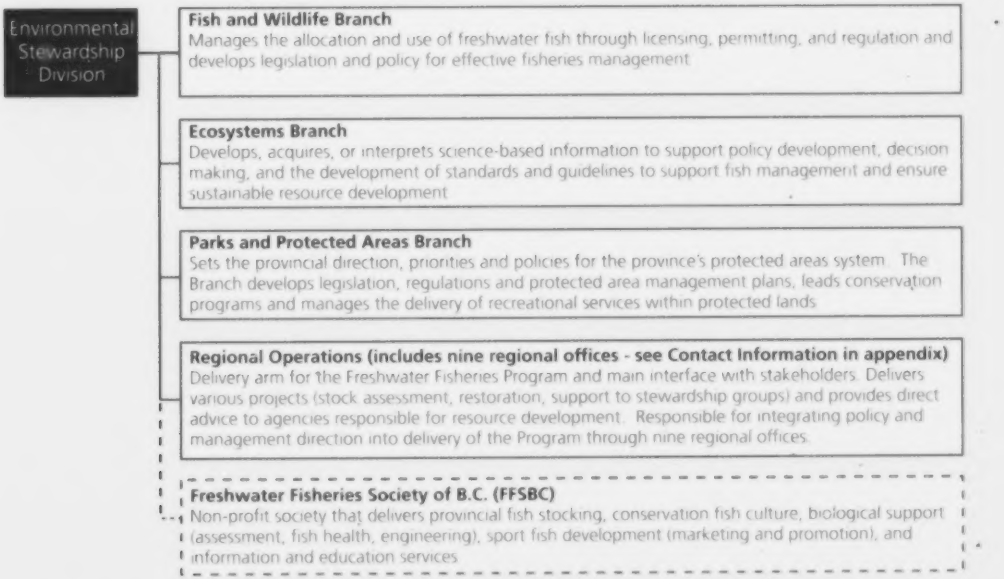
The Freshwater Fisheries Program is developed and delivered through the Environmental Stewardship Division (ESD) and the Freshwater Fisheries Society of B.C. (FFSBC), a non-profit organization previously part of the Ministry of Environment (MoE). The ESD, while supported by the other divisions within the MoE, has the overall responsibility and ownership for the Freshwater Fisheries Program, and therefore, this Plan.

The diagram below provides an overview of the divisions within the Ministry and outlines how each division plays a role in supporting the Freshwater Fisheries Program.


Ministry of Environment
Overview
Linkage
Environmental Stewardship Division
Works to develop, promote and measure achievements in conservation of living resources, management of protected areas, and provision of park, freshwater fish and wildlife recreation services
Leads development and implementation of the Freshwater Fisheries Program Plan
Freshwater Fisheries Program Plan
Water Stewardship Division
Provides provincial leadership in ensuring the water resources and aquatic ecosystems of British Columbia are safe, sustainable, and valued by all
Leads sustainable water allocation and watershed planning
Oceans & Marine Fisheries Division
Leads the development and implementation of the provincial government's ocean resources and marine fisheries initiatives
Leads Federal and Provincial coordination in fisheries matters
Environmental Protection Division
Works to protect human health and the quality of water, land and air
Develops programs and actions to maintain and improve surface and ground water quality
Compliance Division
Works to provide ministry-wide leadership, innovation and services in support of the ministry's compliance goals
Provides investigation, enforcement and preventative programs
Strategic Policy Division
Provides corporate leadership, coordination, analysis and inter-agency communications services to the ministry
Develops strategic and Ministry Service Plans that inform the Program Plan
Corporate Services Division
Provides a wide-range of services to its client ministries and the associated business entities
Provides Corporate Services support

ENVIRONMENTAL STEWARDSHIP DIVISION – BRANCH OVERVIEW

The diagram below provides an overview of the four branches within the ESD and their respective roles and responsibilities within the Freshwater Fisheries Program. The Freshwater Fisheries Society, has a close working relationship with the ESD and takes forward key responsibilities around fish stocking, assessments and the promotion of recreational angling.


Environmental Stewardship Division
Fish and Wildlife Branch
Manages the allocation and use of freshwater fish through licensing, permitting, and regulation and develops legislation and policy for effective fisheries management
Ecosystems Branch
Develops, acquires, or interprets science-based information to support policy development, decision making, and the development of standards and guidelines to support fish management and ensure sustainable resource development
Parks and Protected Areas Branch
Sets the provincial direction, priorities and policies for the province's protected areas system. The Branch develops legislation, regulations and protected area management plans, leads conservation programs and manages the delivery of recreational services within protected lands
Regional Operations (includes nine regional offices - see Contact Information in appendix)
Delivery arm for the Freshwater Fisheries Program and main interface with stakeholders. Delivers various projects (stock assessment, restoration, support to stewardship groups) and provides direct advice to agencies responsible for resource development. Responsible for integrating policy and management direction into delivery of the Program through nine regional offices.
Freshwater Fisheries Society of B.C. (FFSBC)
Non-profit society that delivers provincial fish stocking, conservation fish culture, biological support (assessment, fish health, engineering), sport fish development (marketing and promotion), and information and education services

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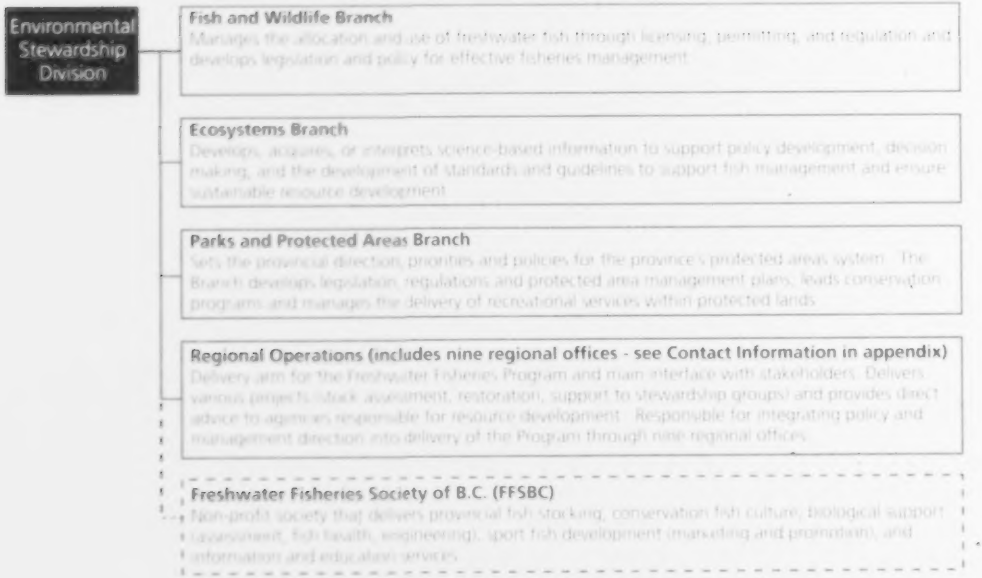
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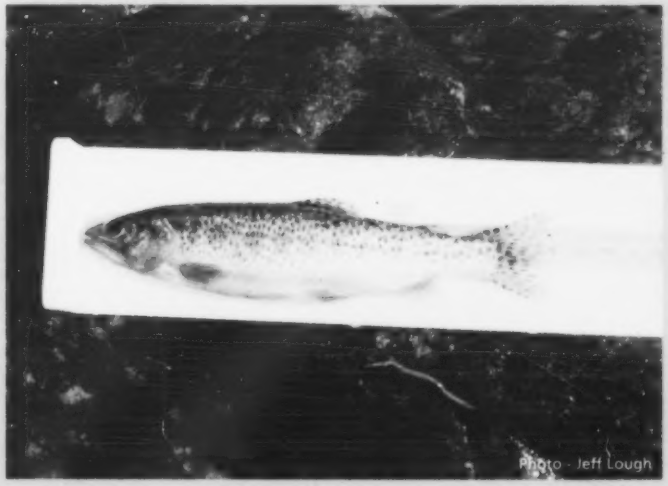
How this fits in the Ministry planning framework

The Province's Five Great Goals set out our government's strategic direction. The Ministry of Environment's Service Plan relates to and builds upon three of these Great Goals. The use of the Service Plan informs the development of annual business plans for the Ministry's seven divisions, including our own Environmental Stewardship Division (ESD).

Prior to the development of the Freshwater Fisheries Program Plan a gap existed in linking the high-level goals and priorities of the Ministry and Division to the planning of day-to-day operations.

This Program Plan effectively fills this gap by providing a common roadmap for all staff. It is reflective of the Ministry's Service Plan and ESD's business plan and provides the necessary direction so that managers can develop operational unit and staff plans in the full knowledge of the Program's Priorities. In addition, with a three to five year horizon, the Freshwater Fisheries Program Plan is able to support annual ESD planning over multiple years.

It is recognized that the Program will face the coordination challenges that come with managing such a diverse and expansive geography and resource. It is expected that the impact of this will be reduced as the Headquarter (HQ) branches, technical committees and the nine regions involved in the Program use this Plan to guide the development of their respective operational activities. In addition, the Division has developed a committee structure that, on an annual basis, will use the Plan to decide focal areas for the coming year.



Ministry Goal #1:
Clean and safe water, land and air

Ministry Goal #2:
Healthy and diverse native species and ecosystems

Ministry Goal #3:
British Columbians understand that they share responsibility for the environment

Ministry Goal #4:
Sustainable use of British Columbia's environmental resources

Ministry Goal #5:
A high performance organization

Province of British Columbia
Five Great Goals

Ministry of Environment Service Plan

Environmental Stewardship Division Business Plan

Freshwater Fisheries Program Plan

Business/Operational Unit Plans

Staff Workplans

Great Goal #2:
Lead the way in North America in healthy living and physical fitness

Great Goal #4:
Lead the world in sustainable environmental management, with the best air and water quality, and the best fisheries management, bar none

Great Goal #5:
To create more jobs per capita than anywhere else in Canada

Supports Annual Business Planning

The Freshwater Fisheries Program Plan

STRUCTURE

The Program Aim is the overarching strategic intent of the Freshwater Fisheries Program. Aligned with this Aim are three Goals, each of which is supported by our key Priorities and Action Plans. We start by presenting the Guiding Principles that shape the policies that govern freshwater fisheries in the Province, and provide context to our Aim, Goals, and Priorities.

PROGRAM GUIDING PRINCIPLES

It is understood that the integrity of the Program rests on the professionalism and expertise of our people.

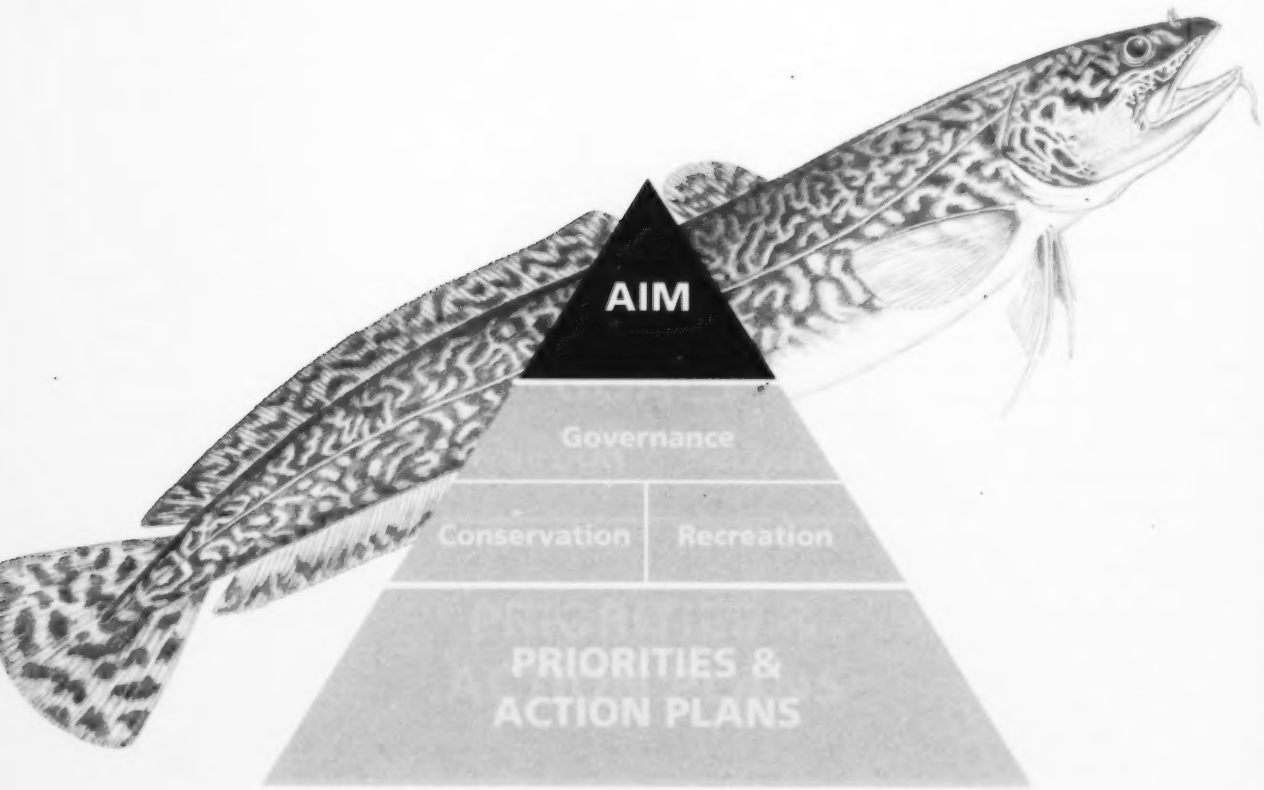
The Program must be well coordinated to ensure our decisions are consistent and reflect the necessary balance between conserving our natural resources and the demand for angling opportunities. To support us in this, the Freshwater Fisheries Program has established a set of principles to guide decisions with respect to the policies and approaches that we adopt. This will support consistent decision making, resource management, and how we work with others to deliver the Program.

Our guiding principles are:

- Wild fish populations are an important component of healthy aquatic ecosystems and the foundation of significant social and economic benefits to the Province. These benefits are derived from a variety of recreational opportunities
- First Nations and stakeholder interests and preferences should be explicitly addressed in fisheries management, restoration, and enhancement plans
- Angling is recognized as a valued and healthy pursuit
- The relationship among governments, First Nations, partners, and stakeholders involved in fisheries management must be clear, collaborative and productive
- The best available science will be provided to decision makers and the public - decisions will be transparent about the trade-offs being made and the uncertainties that exist
- Strong shared stewardship of our fisheries resource is dependent on increasing awareness and accountability for fish and fish habitat among all British Columbians
- Credibility and expertise will be maintained by promoting innovative approaches to recruitment, training, professional development and succession planning

PROGRAM AIM

A naturally rich and sustainable freshwater fish resource supporting diverse uses for all British Columbians.



Burbot Illustration - Loucas Raptis

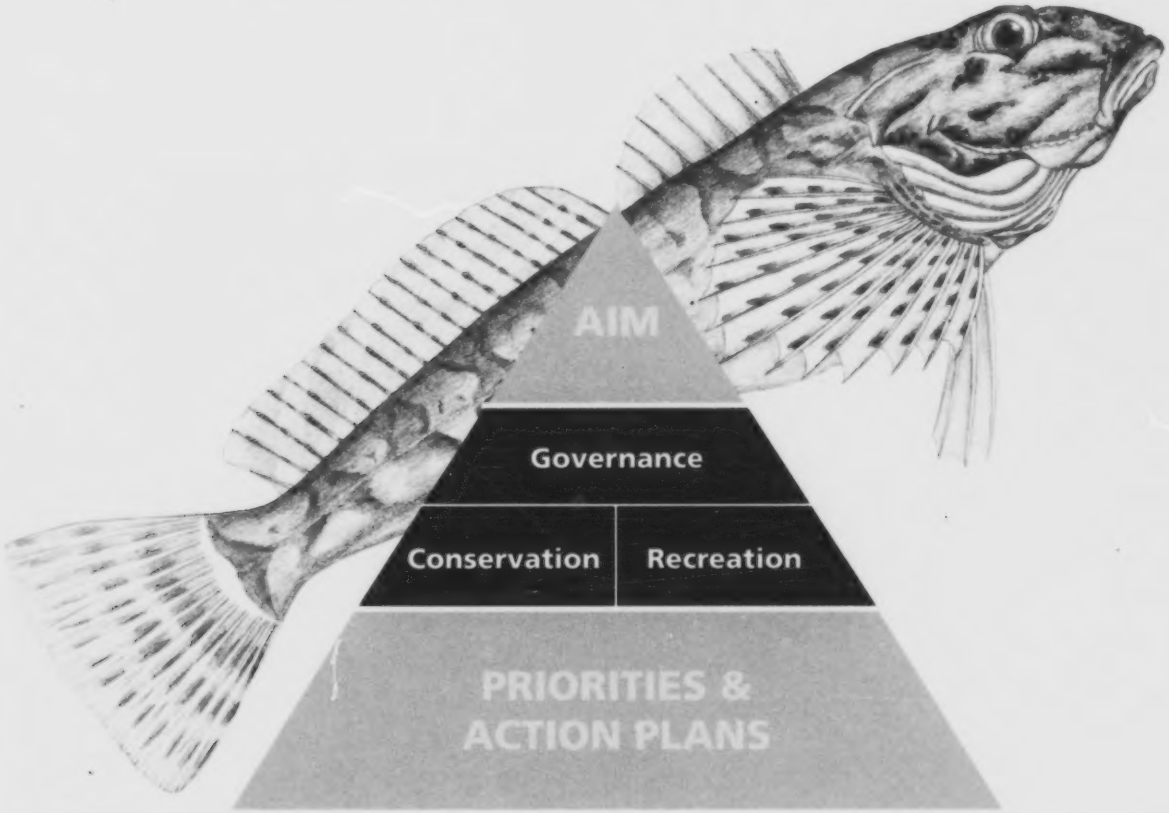
A naturally rich and sustainable freshwater fish resource supporting diverse uses for all British Columbians.

This Aim appropriately reflects the importance we place on the diversity of our wild stocks and on providing valued opportunities for current and future generations. "Naturally rich" recognizes that British Columbians enjoy a unique assemblage of wild fish species and habitats which are both key components of the Province's biodiversity and are part of the natural capital that supports angling and other uses. In order to maintain such a wide variety of fish species and uses, we must manage our wild and hatchery stocks to targeted levels of abundance. We must also mitigate impacts to freshwater habitats from development activities and adapt to long-term climate change. In supporting diverse uses, we will provide a variety of freshwater fisheries related opportunities and benefits for First Nations, anglers and non-consumptive users.

Photo - Ted Zimmerman

PROGRAM GOALS

To achieve our Aim, three Goals have been identified that encompass the key elements of the Program and help align our policies and delivery efforts.



Coastrange Sculpin Illustration - Loucas Raptis

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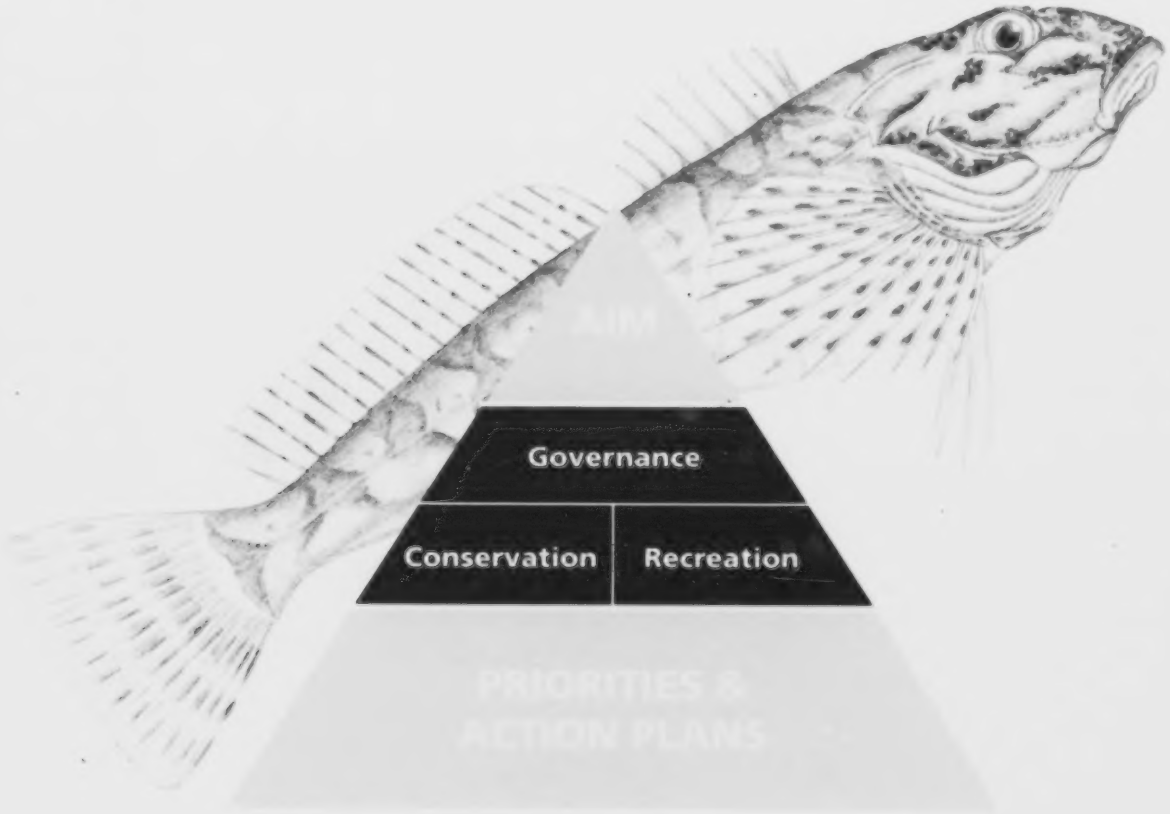


PROGRAM GOALS

Establish governance approaches that are strategic, effective and efficient

The Freshwater Fisheries governing framework needs to be transparent, accountable, adaptive and informed. The way in which we regulate and how we promote and facilitate compliance must be effective if we are to successfully achieve our Aim. Clear roles and effective working relationships with First Nations, delivery partners, and stakeholders are essential. Obtaining the best science and appropriately managing fishery resource information is the foundation of consistent and improved decision making. This will build the capacity necessary for success and is the underpinning for the remaining two Goals.

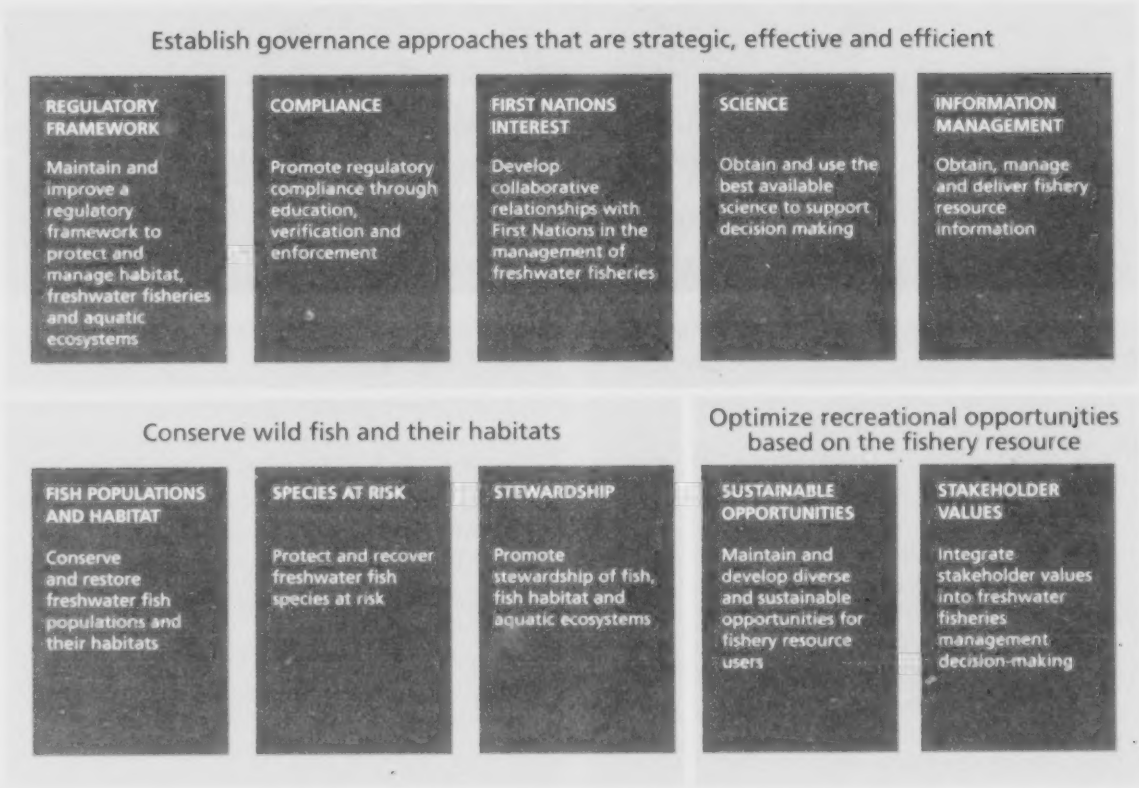
Conserve wild fish and their habitats

Robust wild fish populations, as a key component of healthy watersheds and ecosystems, are the foundation of a sustainable freshwater fisheries program. Conserving wild fish requires management actions designed to protect, maintain and restore fish stocks. Conserving fish and fish habitats requires the combined efforts of land and water managers, resource developers and those involved in community stewardship.

Optimize recreational opportunities based on the fishery resource

A sustainable fishery resource that provides social, economic and recreational benefits to all British Columbians is the result of effective and well-coordinated fisheries management. It recognizes the interests and preferences of users and makes effective use of hatcheries and other enhancement programs.

To deliver on our three Goals, ten Priority areas have been identified. Each Priority is aligned under the appropriate Goal and is intended to clearly articulate the set of activities we must undertake in order to address key challenges and effectively deliver the Program Plan. The Priorities are not stand-alone areas, they are interdependent and must be delivered together in order to achieve our Aim and Goals.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Maintain and improve a regulatory framework to protect and manage habitat, freshwater fisheries and aquatic ecosystems
COMPLIANCE
Promote regulatory compliance through education, verification and enforcement
FIRST NATIONS INTEREST
Develop collaborative relationships with First Nations in the management of freshwater fisheries
SCIENCE
Obtain and use the best available science to support decision making
INFORMATION MANAGEMENT
Obtain, manage and deliver fishery resource information
Conserve wild fish and their habitats
FISH POPULATIONS AND HABITAT
Conserve and restore freshwater fish populations and their habitats
SPECIES AT RISK
Protect and recover freshwater fish species at risk
STEWARDSHIP
Promote stewardship of fish, fish habitat and aquatic ecosystems
Optimize recreational opportunities based on the fishery resource
SUSTAINABLE OPPORTUNITIES
Maintain and develop diverse and sustainable opportunities for fishery resource users
STAKEHOLDER VALUES
Integrate stakeholder values into freshwater fisheries management decision-making

For each Priority, we provide rationale as to why we have selected it, the issues that make it a Priority and what the indicators of successful delivery will be. We also present a selected set of activities that the Program will undertake in support of the specific Priority. These activities will in turn be used by Regional and HQ staff to build their respective annual business plans based on the unique circumstances within their area of responsibility.

It is important to note that these are the Priorities of the current Program. We recognize that the state of our fisheries is dynamic and that we must continually monitor and modify the Program Plan to make certain that we are taking the appropriate steps to ensure that future generations are able to enjoy this incredible resource.

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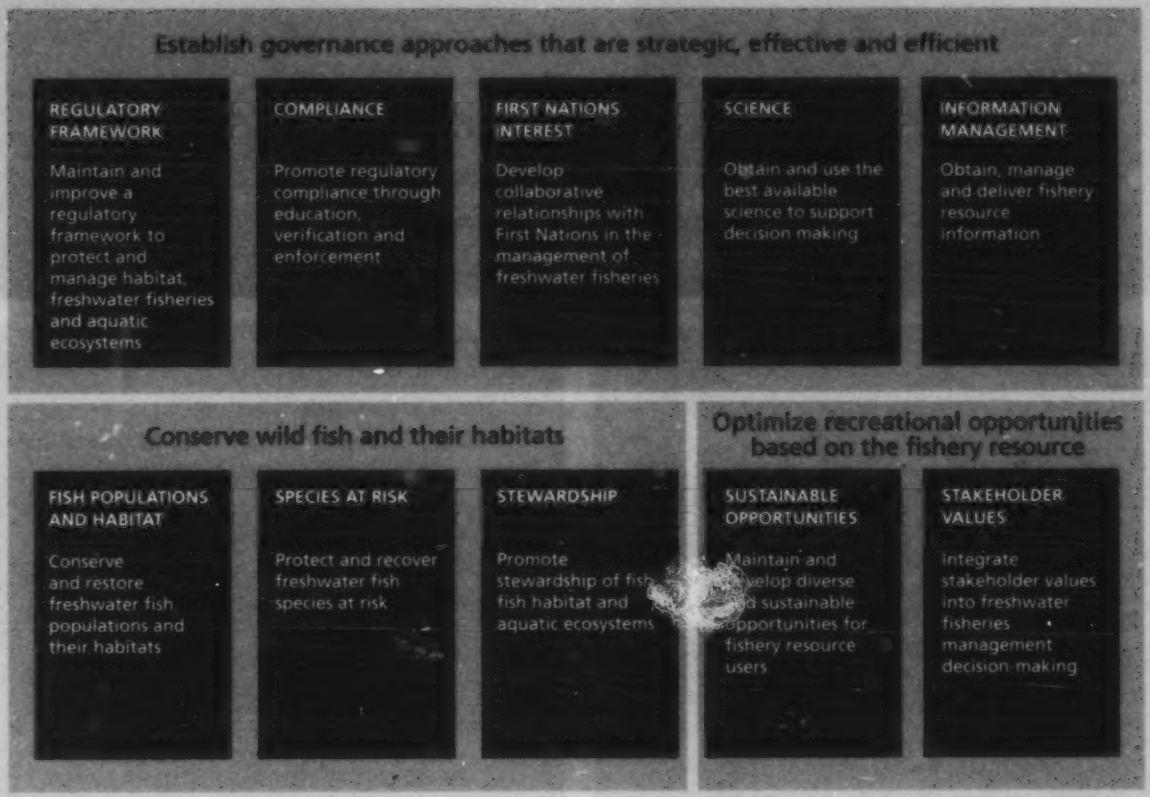
Westslope Cuttroat Trout Illustration - Loucas Raptis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REGULATORY FRAMEWORK

Maintain and improve a regulatory framework to protect and manage habitat, freshwater fisheries and aquatic ecosystems

KEY ISSUES

- Conflict between economic development and conservation of aquatic resources
- Federal/provincial overlaps in jurisdiction in both fisheries and habitat management result in a complex governance system
- Angling regulations are viewed as complex and often confusing by the angling public. The rationale for varying regional approaches is not clear
- A paper licensing system is inefficient and does not support innovative management, effective client surveys, or compliance
- The variety and complexity of freshwater ecosystems makes the development of effective habitat management standards technically challenging
- Cumulative impacts are difficult to assess and manage under a sector-by-sector, proposal-by-proposal approach
- Un-managed access development can lead to watershed-level impacts and increased angling pressure

SUCCESS MEASURES

- Electronic licensing is implemented
- Client surveys indicate an understanding of, and compliance with, the regulatory regime
- Monitoring program results indicate aquatic values in developed watersheds are maintained
- Priority habitat management standards identified and developed
- Creel and opinion surveys indicate angler satisfaction is improved
- Habitat regulatory framework is streamlined and simplified

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Angling regulations are a key component of fisheries management strategies and must be both understood and accepted by the angling public in order to be effective. Additionally, habitat regulations, policies, and standards are the key mechanisms to facilitate development in an environmentally sustainable way.

ACTIVITIES

Ensure effective communication of the regulatory framework

- Create a federal/provincial working group to coordinate management activities for areas where federally-managed and provincially-managed fisheries overlap
- Develop and maintain an efficient and effective means of communicating angling regulations to stakeholders (e.g. annual publication of synopsis, notification of in-season changes)
- Use the Pacific Council of Fisheries and Aquaculture Ministers (PCFAM) working group to coordinate and develop a federal/provincial habitat management framework

Develop and maintain appropriate policies, procedures and regulations

- Where appropriate, monitor angler use and regulate to maintain quality fisheries
- Streamline and simplify angling regulations to promote more accessible fisheries
- Lead or support the development of relevant policy, standards, and legislation regarding the protection of fish species, habitat, and sustainable resource management (e.g. *Water Act*, *Fish Protection Act*)
- Develop an approach to monitor the effectiveness of policy, legislation and management plans in achieving watershed or species based objectives

Conduct and support effective consultation

- Develop a provincial advisory body where stakeholder representatives can provide input on high profile and province-wide angling regulations
- Maintain and improve regional stakeholder consultative processes for angling regulation changes
- Support development of electronic licensing
- Provide input on fisheries management and protection issues to Integrated Land Management Bureau (ILMB) and to provincial land managers for land-use planning and resolution of land-use conflicts
- Consult on new or revised habitat policy and standards with sectors that are potentially impacted and with environmental organizations

COMPLIANCE

Promote regulatory compliance through education, verification and enforcement

KEY ISSUES

- Angling regulations are complex resulting in challenges to achieve compliance (particularly with non-resident anglers)
- Results-based habitat management regulations have significantly increased the need for monitoring and has made compliance evaluation more complex
- Responsibilities relating to compliance and enforcement span across most Ministry divisions with varying issues and priorities (see page 8 for Ministry divisions)
- Program Priorities and Conservation Officer (CO) priorities are not always aligned
- Vast geographical landscape and number of water systems make CO 'presence' a challenge
- Jurisdictional overlap between federal/provincial regulations, as well as Fishery Officers and CO's can complicate the roles and responsibilities relating to compliance
- There is no clear linkage between compliance data, annual work planning, and the regulatory review process
- Mechanisms to track year-over-year compliance data in a standardized format do not exist

SUCCESS MEASURES

- Regulatory requirements are clear, practical and enforceable
- High rates of voluntary compliance are achieved
- The Ministry acquires the information necessary to determine compliance rates and to inform program management
- Client surveys indicate an understanding of, and compliance with regulatory regime
- Data systems are in place to enable risk-based planning and inter-provincial reporting of compliance

THIS IS A PRIORITY

The Ministry of Environment establishes, administers and advises on a suite of regulatory requirements in order to meet the Ministry's mandate. In addition the Ministry's ability to achieve its stated goals – 'healthy and diverse native species and ecosystems, sustainable use of our environmental resources and an understanding of B.C.'s shared responsibility for the environment', requires that anglers, commercial guides, resource developers and others comply with the established regulatory requirements. The Ministry strives to achieve high levels of voluntary compliance by setting clear requirements, educating client groups on those requirements and their rationale, and monitoring whether or not they are being followed. Where voluntary compliance is not being achieved, the Ministry uses an array of enforcement tools to compel compliance.

ACTIVITIES

Ensure effective mechanisms for establishing compliance work priorities

- Encourage longer-term compliance planning by developing 3-5 year compliance plans that provide the foundation for annual priority setting
- Ensure regional compliance work-planning is aligned between all compliance program partners (including Conservation Officer Service (COS) and other ministry divisions) and is informed by compliance patterns and trends, ambient and effectiveness monitoring, and performance indicators
- Develop a matrix to clarify roles and responsibilities of all compliance program partners, including Fisheries Program staff, the COS, Department of Fisheries and Oceans, and FFSBC
- Ensure fish and fish habitat value information is avaiable to support resource development decisions and watershed or land-use planning

Promote regulatory requirements to encourage voluntary compliance

- Promotion will be the first activity undertaken when introducing regulation changes so that users can understand the rationale for the requirement they are expected to comply with, and the consequences of non-compliance
- In collaboration with the Compliance Division and program partners, develop an effective strategy for:
  - Communicating angling regulations (including in-season changes), reporting the results of compliance activities for deterrence/incentive purposes, educating client groups and promoting the use of the Report All Poachers and Polluters (RAPP) line

Verify that regulations are being followed

- Compliance verification activities (inspections, audits, etc.) will be based on a planned schedule that considers risk (actual or potential impacts and likelihood of occurrence) as well as the need to maintain an appropriate level of contact with all user groups

Ensure the appropriate mechanisms are in place to compel compliance when necessary

- Maximize the use of the Conservation Offieer Online Reporting System (COORS) to provide historical enforcement data to guide actions and decisions
- Ensure appropriate training is available to staff so that investigative enforcement actions are meeting the necessary standards (i.e. Fisheries Officers)
- Effectiveness of available compliance tools and penalties will be evaluated periodically

FIRST NATIONS INTEREST

Develop collaborative relationships with First Nations in the management of freshwater fisheries

KEY ISSUES

- Fundamental cultural differences exist with respect to the fishery resource
- Resource constraints in First Nations and the Program have limited the frequency and effectiveness of consultation
- The current framework does not adequately integrate First Nations interests in fisheries management
- Current consultation mechanism for new/revised legislation and regulations is not efficient or effective in securing First Nations engagement
- Where capacity is an issue, First Nations interests may be focused primarily on federally managed salmon-based fisheries
- Treaty settlements will establish First Nations fisheries managers that need to be part of the Freshwater Fisheries Program (e.g. Nisga'a and Haida Treaties)

SUCCESS MEASURES

(PENDING FIRST NATIONS CONSULTATION)

- Communication and participation of First Nations in regional committees and meetings is improved
- Relationships are improved such that First Nations are satisfied they are able to provide meaningful input and insight into fishery decisions
- More collaborative agreements are in place; including Memoranda of Understanding (MOUs) or agreements that outline effective working relationships
- Decreased court cases, if applicable
- First Nations food, social, and ceremonial needs are met with respect to freshwater fish resources

THIS IS A PRIORITY

The New Relationship with First Nations is an important cross-government priority in B.C.. Critical to this relationship is the stewardship of British Columbia's shared fishery resource and support of the food, social and ceremonial needs of First Nations. This requires consultation with First Nation communities where rights or title may be affected.

ACTIVITIES

Develop collaboration with First Nation communities and build upon established working relationships

- Create opportunities for direct, face-to-face communication
- Increase involvement of First Nations in fisheries management decisions
- Increase understanding of First Nations use of the fishery resource
- Ensure sharing of information on the fishery resource
- Where possible, work within existing programs to increase First Nations capacity to be involved in fisheries initiatives

Ensure consultation with First Nations

- Establish a process that ensures consultation
- Develop policies and procedures to reflect relevant court decisions

Ensure the Fisheries Program has clearly developed mandates and policy for participation in the treaty process

- Clarify the Fisheries Program role in treaty negotiation to enable better coordination between provincial treaty negotiators (proposing the changes) and regional staff (implementing the changes)

SCIENCE

Obtain and use the best available science to support decision making

KEY ISSUES

- Effective management of the fishery resource requires ensuring public confidence in the scientific basis for decision making
- Obtaining the best available science requires in-house scientific capacity in order to:
  - Maintain credibility of the Program
  - Effectively develop and engage in partnerships (i.e. academia)
  - Effectively use contracts or other means to obtain science and to review/interpret the results
  - Conduct applied science research to address priority questions where external science providers may not have the capacity or interest
  - Prioritize scientific knowledge to address key decision issues
- Emerging concerns, such as climate change, require ongoing development of new methodologies and adaptive approaches
- Many experts are nearing retirement; a need to identify future skill sets and successors is required

SUCCESS MEASURES

- New and innovative standards and methodologies are developed and implemented as new management practices (e.g. hatchery-wild interactions modeling; restoration effectiveness monitoring)
- Consistent approach to the use of science is adopted in the management and decision making of the Program
- Scientific research is integrated into the fisheries management program
- Peer-reviewed publications and reports are produced
- Ministry staff are considered a trusted source of reliable science-based information

THIS IS A PRIORITY

The Ministry is committed to using the best available science to inform its decisions. This scientific approach provides a formal and consistent means of evaluating management alternatives with respect to outcomes and ensures uncertainties are explicitly described and evaluated during the decision making process. A strong science program also establishes credibility for management actions (e.g. allocation decisions).

In addition, the Province has a responsibility to establish conservation requirements and identify sustainable opportunities. It is through the use of science and applied research that innovative solutions to management and restoration issues can be revealed.

ACTIVITIES

Knowledge Production

Conduct applied research

- Provide a leadership role in identifying emerging science and management issues
- Conduct and support applied research to improve the scientific basis for management of species and habitats
- Develop new techniques for achieving Fisheries management goals (e.g. research new methods for assessment and monitoring, enhancement)
- Develop a research agenda with respect to science priorities on an annual basis

Collaborate with the broader scientific community

- Determine science objectives that can be most effectively achieved through collaboration and partnerships
- Foster relationships to assist in the delivery and attainment of science priorities

Knowledge Utilization

Support decision processes

- Ensure framework is in place for objective assessment of regional priorities and consistent use of science
- Provide timely science information to inform agencies, proponents, and stakeholders
- Provide leadership to manage the science agenda
- Develop improved methodologies for the consistent application of scientific information in support of management decisions
- Review and improve data modeling and synthesis
- Develop methods and standards to evaluate fish and fish habitat values to incorporate into environmental impact assessments

Assess monitoring programs to follow long-term trends in fish populations and fish habitat

- Evaluate the effectiveness of projects and program initiatives

INFORMATION MANAGEMENT

Obtain, manage and deliver fishery resource information

KEY ISSUES

- Information that is collected from diverse sources is not routinely entered into centralized information management systems
- Lack of awareness around uses and availability of tools, systems and information can reduce Program delivery efficiency
- Many of the information management tools in place do not directly address fisheries management concerns
- Third-party data may not provide information in a form that is directly compatible with information management systems
- Access to available information is limited, restricting broader use and application (e.g. modeling)
- Many long-time employees nearing retirement are the custodians of valuable data and information that is not captured in provincial databases
- Some types of data (e.g. angler use, specific stock assessments) are not centralized or not readily available
- Ageing information systems will require a significant investment to upgrade

SUCCESS MEASURES

- Staff and stakeholders ensure data is routinely supplied to provincial systems and historic data is captured
- Provincial data systems are widely viewed as the primary, trusted source of information
- Ability to efficiently provide summary and/or detailed information to support Program delivery is improved
- Data-use tools are relevant and well routinely utilized
- Staff recognize their responsibility in maintaining information
- Quality control measures confirm data reliability

THIS IS A PRIORITY

Relevant and reliable information is the foundation of effective management strategies and sound decision making with respect to the status of species and stocks. Additionally, resource development proposals and decisions require accurate and thorough information in order to apply appropriate protection standards and develop mitigation strategies. This information must be widely available to establish confidence in strategies and ensure transparency in decision making.

Increasingly there is a reliance on third-party data sources. This emphasizes the need for appropriate standards and highlights efficiency opportunities (i.e. reduced duplication of effort) that can be capitalized on by having more relevant and better maintained information.

ACTIVITIES

Develop an improved information management framework strategy

- Develop communications and internal procedures to ensure the information management framework is applied
- Maintain and improve standards and methods for inventory and monitoring of fish populations, fish habitat and resource uses (including data quality and quality assurance)
- Maintain and improve database systems for the effective storage, retrieval and utilization of fish and fish habitat data
- Develop and implement a strategy to capture histories / legacy data into 'Eco-cat' by 2010
- Develop a fisheries-based habitat supply model by 2008

Improve the accessibility and utilization of existing tools and information – institute data assessment procedures and error checking

- Communicate the need and relevance of the increased reliance and use of information systems
- Identify methods to achieve greater knowledge transfer of retiring employees
- Develop training approaches to educate staff on information tools

Broaden the use and application of fisheries information

- Explore "state of the resource" and other fisheries information summaries to support reporting
- Ensure the appropriate resources and systems are in place to disseminate information

Optimize collaboration on information management

- Encourage information sharing, joint priority setting and pooling of resources to coordinate work across jurisdictions
- Complete freshwater classification system in partnership with Nature Conservancy of Canada by 2007
- Pilot mechanisms to supply information to, or receive data from, species-based and watershed planning initiatives

FISH POPULATIONS AND HABITAT

Conserve and restore freshwater fish populations and their habitats

KEY ISSUES

- Ecological modifications due to climate change will require a significant adaptive response by fisheries managers
- Declining watershed health in some areas is affecting productivity
- Unsustainable use of fish and habitat is placing significant pressure on this natural capital in some areas
- Cumulative impacts on fish populations and habitats (e.g. at watershed and landscape scales) are not effectively addressed in land-use processes
- Invasive species are threatening indigenous populations and some recreational fisheries (see Invasive Species Management Action Plan)
- Lack of tools and guidelines for habitat protection in some industries
- Some important wild stocks and species face a threat of extinction (see also Species at Risk Priority)

SUCCESS MEASURES

- Fish population abundance is sustained at target levels for indicator stocks
- Species at risk listings decline as recovery plans achieve positive outcomes
- Fish requirements for instream flows are fully considered in water allocation decisions
- Unauthorized invasive species introductions are reduced
- Monitoring of watershed developments demonstrates compliance with legislated habitat protection standards and best management practices
- Over-harvest is curtailed by effective regulation, enforcement and education programs
- Ecosystem function is maintained

THIS IS A PRIORITY

Fish are a public resource upon which environmental, economic and social benefits are derived. By maintaining wild fish populations we will help to ensure sustainability of the Province's watersheds and all of the ecological, economic, social and cultural assets they provide.

Threats to fish and their habitats, such as land and water use developments (e.g. industrialization, urbanization, landscape changes) and the environmental uncertainty from climate change, must be managed effectively to maintain the value of freshwater fisheries (approximately $500M per year) – half of which are dependent on wild fish. B.C. supports an incredible diversity of freshwater fish populations whose role is pivotal in many aquatic ecosystems. Maintaining these populations within properly functioning ecosystems that are presently intact will be more cost-effective than trying to recover them later.

ACTIVITIES

Species/Stock management and restoration

- Develop indicators and other stock assessment strategies to track the status of priority fish stocks
- Conduct research on priority species related to life-history, habitat capacity, habitat requirements and stock recruitment models
- Develop recovery plans for stocks in the conservation / extreme conservation management zones (note that recovery plans for species at risk are addressed in the following Priority)
- Develop species-based management plans to establish provincial-level objectives and management strategies for species that support recreation

Habitat management

- Develop a habitat supply model for aquatic species that are actively managed by 2008
- Support the development of legislation, standards and guidelines that will protect aquatic habitat values while supporting sustainable development such as:
  - Implementing the Riparian Areas Regulation in urban environments
  - Developing designation procedures for Fisheries Sensitive Watersheds and Temperature Sensitive Streams under the *Forest and Range Practices Act*
  - Developing guidelines to protect aquatic habitat values in light of major changes to the forest environment due to the Mountain Pine Beetle
- Work with the agricultural sector and other agencies to develop environmental guidelines
- Update environmental assessment guidelines for small hydro development
- Complete and implement best management practices for "work in and about a stream" as regulated under the *Water Act*
- Provide reliable advice and information into major project review process (e.g. Waneta Expansion)

Climate Change

- Develop an action plan with research priorities to improve our ability to forecast the impact of climate change and develop adaptive responses

continued...

Conservation

FISH POPULATIONS AND HABITAT

Conserve and restore freshwater fish populations and their habitats

ACTIVITIES (CONTINUED)

Water management

- Work with Water Stewardship Division and DFO to establish provincial standards for instream flow needs assessments, and integrate fish flow needs into water allocation decisions
- Work with Water Stewardship Division, B.C. Hydro and DFO on the development and implementation of a comprehensive monitoring program for water use plans as part of the adaptive management process
- Develop and implement a monitoring program for small hydro developments
- Support the development of water-use plans for additional systems such as the Nicola River, where flows are regulated for multiple purposes and water-use conflicts exist
- Work with Water Stewardship and Environmental Protection divisions on the development of a comprehensive monitoring program for flows and water quality including assessing contaminants in fish (using a risk based approach)

Watershed restoration

- Work with the Water Stewardship Division to establish a coordinated approach to watershed planning that incorporates fisheries values
- Identify the key biophysical indicators to monitor for watershed health
- Research, develop and evaluate restoration tools and standards
- Work with First Nations, stewardship groups, industry and other agencies to develop and implement plans for priority watersheds such as:
  - Compensation programs - collaborate with B.C. Hydro on the delivery of compensation programs for the Peace, Columbia and Bridge/Coastal watersheds and develop appropriate compensation options related to other major projects
  - Recovery strategies - collaborate with the Fraser Basin Council and other partners on the implementation of recovery strategies for the Fraser and Georgia basins

Conservation

SPECIES AT RISK

Protect and recover freshwater fish species at risk

KEY ISSUES

- Under existing capacity, the ability to meet timelines associated with national status assessment and recovery processes as legislated under the *Species at Risk Act* (SARA) is challenging
- The information on which status assessments are based is often incomplete or circumstantial which could lead to inappropriate status designations
- Public awareness and support for species at risk initiatives is low in many cases
- Overlapping jurisdictional roles and responsibilities between provincial and federal agencies require improved coordination
- There are unresolved policy issues with respect to implementing the *Species at Risk Act* (e.g. identification of critical habitat, recovery plan approval processes, evaluating socio-economic impacts) and the *Wildlife Amendment Act*

SUCCESS MEASURES

- Status assessments accurately portray the status and threats associated with the species
- Legislative timeframes for recovery plans are met, with support from First Nations and stakeholders
- There is an increase in proactive measures (e.g. inventory, habitat protection) aimed at preventing species/populations from being elevated to the Species at risk (SAR) designation
- Down-listing of Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated species to a lower level of risk is observed

THIS IS A PRIORITY

British Columbia has a national and international commitment to protecting species at risk as a signatory to the National Accord for the Protection of Species at Risk (SAR). This is a significant commitment for B.C. as the Province contains many rare and unique fish populations and species that make significant contributions to native biodiversity at a provincial, national and global level. Some of these species also provide substantial socio-economic benefits and have spiritual significance to First Nations.

With each passing year more species at risk are identified in B.C., indicating that a more proactive response is necessary to address the protection and management of the resource. Most SAR are vulnerable to various land development activities and most freshwater fish species at risk are threatened by habitat loss and degradation. It is essential to identify and protect key habitat needs in a timely fashion.

ACTIVITIES

SAR identification and designation

- Provide technical support to the Conservation Data Centre (CDC) to support provincial assessments and identification of candidate species
- Develop or partner on an inventory and research strategy for candidate species to inform designation process
- Participate on COSEWIC and provide technical support for the national designation process
- Coordinate the provincial response to proposed listings of aquatic species under SARA and develop rationale for listings under the *Wildlife Act*

Recovery planning and implementation

- Co-lead (with DFO) or participate on recovery planning processes for aquatic species where B.C. has a management responsibility or interest
- Develop recovery planning and implementation teams that include the full range of First Nations, stakeholder and government interests
- Deliver recovery plans to government agencies within legislated timeframes, develop partnerships to assist in their delivery and lead or promote monitoring and research activities to fill information gaps

Protection

- Develop proactive measures to mitigate risks to candidate species
- Undertake the necessary analyses for the identification of 'residence' and 'critical habitat' for SARA listed species
- Develop species accounts and measures under the Identified Wildlife Management Strategy for aquatic species at risk on Crown forest land
- Work with DFO to conduct "Allowable Harm Assessments" to support permitting under SARA
- Support stewardship initiatives including the development of communication and educational materials

Policy and legislation

- Support provincial processes including implementation of the Species at Risk Framework, development of supporting regulations under the *Wildlife Amendment Act*, support development of a revised *Wildlife Act* and support B.C.'s role on the Species at Risk Coordinating Committee
- Participate on national processes such as the Canandian Council of Fisheries and Aquaculture Ministers (CCFAM) Aquatic Species at Risk Task Group to influence federal policy on SARA implementation

Conservation

STEWARDSHIP

Promote stewardship of fish, fish habitat and aquatic ecosystems

KEY ISSUES

- Current stewardship efforts at the watershed level are not coordinated and sometimes have conflicting objectives leading to uncertain outcomes
- Watershed management and restoration priorities are often undefined, leaving stewardship programs without clear direction
- Government responsibilities and legal obligations to First Nations require a collaborative stewardship approach to fish and habitat management but capacity is limited
- Developing coordinated management or restoration plans is complex and requires significant human and financial resources

SUCCESS MEASURES

- Inclusion of fish and aquatic habitat requirements in watershed planning (both land-use and water allocation)
- Development of an integrated program of community stewardship for fish and fish habitat with increased community involvement and support for Fisheries Program activities throughout the Province
- Identification of common interests between First Nation fisheries and provincial Fisheries Program objectives and activities
- British Columbians understand and are aware that they share responsibility for conservation of the natural environment

THIS IS A PRIORITY

Environmental sustainability depends on the collective knowledge, commitment and actions of individuals, industry, communities and all levels of government (including First Nations). In addition, the success of many Fisheries Program Priorities depends on informed and engaged stakeholders. For example, compliance with management plans and fishing regulations will be improved as knowledge of fish and aquatic ecosystems is increased among stakeholders.

Community-based stewardship is often the only option to address non-point source threats to fish and aquatic ecosystems. The support and action of the community is also required for conservation and restoration of aquatic species and habitat. In the case of First Nations, cooperative programs enhance Provincial Fisheries Program objectives and activities.

ACTIVITIES

Information/Outreach

- Develop and make available educational information and material on conservation and management of species, habitats and watersheds
- Use FFSBC hatchery visitor centres as a key delivery mechanism
- Ensure fish and fish habitat value information is avaiable to support resource development activities and watershed or land-use planning

Extension/Technical Support

- Support stewardship group activities including the provision of technical advice, development of funding applications, and access to data and information
- Develop and provide standards and guidelines that will support stewardship activities

Planning Processes

- Develop coordinating mechanisms for watershed planning to ensure common objectives and effective prioritization
- Involve stewardship groups in the development of watershed and species management or recovery plans (Water-Use and Watershed-based Fish Sustainability planning processes provide important vehicles for stewardship at the community level)

SUSTAINABLE OPPORTUNITIES

Recreation

Maintain and develop diverse and sustainable opportunities for fishery resource users

KEY ISSUES

- Declining angling participation and licence sales may signal a reduced interest in the fishery resource
- Fisheries managers do not have a comprehensive understanding of angler preferences which is required to establish and market alternative management approaches (see Stakeholder Values Priority)
- Policies and standards used to ensure the achievement of conservation objectives and the provision of diverse angling opportunities are dated

SUCCESS MEASURES

- Number of licenced anglers is increased by 30% (over 2004-05) by 2015
- Scores on Angler Satisfaction Surveys are increased
- As a result of improved fishing opportunities, angler effort is increased
- Level of satisfaction amongst anglers is increased
- Marketing plan for freshwater fishing is well developed and implemented

THIS IS A PRIORITY

Diverse and sustainable opportunities for fishery resource users directly contribute to the Ministry of Environment's Goal of providing "Sustainable use of British Columbia's environmental resources". In addition, they contribute to the Provincial Goal #2 of leading North America in healthy living and fitness by including fishing as part of a healthy lifestyle.

Fisheries resource use provides substantial indirect economic benefits to the Province through tourism and angler expenditures. In addition, licence sales and permits generate revenue that directly fund the freshwater hatchery program and other activities of the FFSBC.

To retain and increase angler participation and use of our freshwater fish resources, a variety of experiences need to be offered that meet the demands of stakeholder preferences including consumptive and non-consumptive uses.

ACTIVITIES

Understand the fish resource and the potential angling opportunities

- Develop data summaries for various targeted species to synthesize available data and identify the long-term information needs and preferred assessment approaches
- Prioritize short-term stock assessment needs and acquire this information
- Develop appropriate models and tools to help identify where there is capacity to support additional angling pressure on either wild or hatchery fish

Develop appropriate tools and practices

- Complete and launch electronic licensing service
- Implement Quality Waters initiative
- Review and update policies with respect to the use of hatchery fish

Develop and implement fishery plans

- Use species-based data summaries, stakeholder preferences (see Stakeholder Values Priority) and resource assessments to define objectives and establish the appropriate management approach
- Find new opportunities to use the FFSBC fish hatchery program to provide additional quality angling opportunities where appropriate and assess the success of stocking programs in meeting management objectives and client preferences

Promote and market through partnerships

- Build stronger relationships with Tourism B.C. to attract users to B.C.'s freshwater fish resource
- Build partnerships with other stakeholder groups to increase marketing capacity and effectiveness (e.g. B.C. Wildlife Federation (BCWF), angling guides)
- Identify and promote under-utilized angling and fish viewing opportunities

STAKEHOLDER VALUES

Integrate stakeholder values into freshwater fisheries management decision making

KEY ISSUES

- Diverse client groups often have divergent values and preferences
- Staff capacity issues limit the effectiveness of current collaboration and consultation mechanisms
- The majority of anglers are not represented by formal organizations so their opinions are not necessarily solicited through existing consultative processes
- Angling regulations are complex and often confusing, which may be a barrier to improving participation rates

SUCCESS MEASURES

- Cost-effective mechanisms for consultation and obtaining client values/preferences are established
- Client surveys indicate improved satisfaction with angling opportunities
- Angler participation is increased

THIS IS A PRIORITY

The effective delivery of quality services is directly dependent upon a good understanding of client values and preferences. Incorporating these aspects into management approaches will help maintain and increase participation in fisheries and will also help reduce conflicts and improve relationships with diverse client groups.

ACTIVITIES

Understand the users

- Build and deliver effective stakeholder consultation processes at provincial and regional levels
- Assess client preferences and values and incorporate into management approach and decisions
- Conduct angler preference and satisfaction surveys to determine alignment between demand and opportunity (unique stocks, family fisheries, trophy fisheries, wilderness experience)
- Investigate non-consumptive demand to identify new freshwater resource uses (e.g. fish viewing)

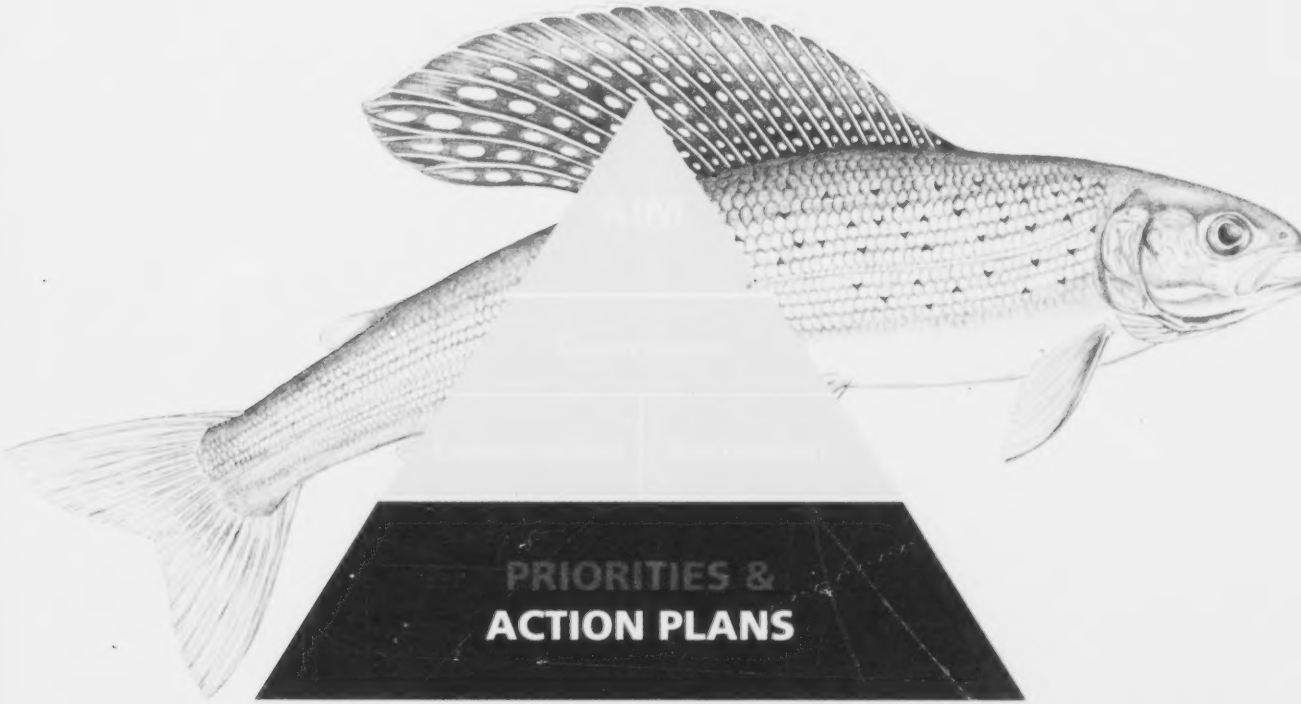
Improve cooperation and information sharing

- Develop a public survey process to monitor and interpret public attitudes and preferences on freshwater fisheries
- Establish mechanisms to improve the dialogue among recreational, commercial and First Nation sectors on fishery planning, catch monitoring and information exchange

Develop policies to communicate and implement stakeholder preferences, where necessary

- Develop management models to evaluate alternative regulatory approaches to improve acceptance of management strategies by angling stakeholders
- Establish a cooperative process with anglers to simplify and improve the regulatory regime governing freshwater fisheries
- Work with the federal government to expand our authority under the *Fisheries Act* to adopt alternative means to regulate freshwater angling

Actions Plans are the way in which we manage issues that cut across a number of Priorities. Therefore, you can expect to see some repetition in the activities identified under our Priorities. In most cases, each Action Plan is supported by a committee structure that draws on the necessary expertise found across the Ministry and beyond.



ACTION PLANS – .DESCRIPTION OF PLANS

In the pages that follow, we present summaries of the Program's current Action Plans. As with the Priorities, we recognize that as circumstances change so will the Action Plans that we pursue. For each Action Plan, we provide an overview of why there is a need for action, the key issues or challenges facing the Program, and the measures that will help us determine success. Finally, aligned under the appropriate Program Goal, we present a set of activities that we will undertake as part of the Action Plan.

PRIORITIES & ACTION PLANS

Large lakes action plan summary

Large lakes are bigger than 1,000 hectares and are typically complex ecosystems supporting a more diverse fish/aquatic community than that found in small lakes.

KEY ISSUES

- Monitoring the fisheries resource in large lakes is complex and needs to be conducted in a systematic and coordinated fashion to ensure robust data is accessible and comparable between lake systems
- Significant declines in kokanee and other fish populations have been observed in a number of key large lakes and as a result angling participation rates are declining
- Habitat values (including tributary streams and foreshore areas) are under stress or declining in many large lakes
- Nutrient levels have been altered in some key lakes causing significant changes in productive capacity
- There are often many competing interests and values associated with the management and use of large lakes which need to be balanced

SUCCESS MEASURES

- Populations are maintained at target levels of abundance
- Large lake ecosystems are intact and functioning properly, including stream spawning habitat
- Number of licenced anglers is increased by 30% (over 2004-05) by 2015
- Angler satisfaction and participation is increased

Large lakes are a key component of the Province's aquatic ecosystems support for wild stocks and other biodiversity values. They play an important role in B.C.'s economy and are second to the small lakes in regards to angling-based economic activity. Recently, the growing impact of human development on key large lakes has become evident.

Large lakes are unique in B.C. as there are approximately 20 lakes throughout the Province that support fisheries for large rainbow trout, char and kokanee. These lakes have the potential to support increased angler effort when managed in a sustainable way.

ACTIVITIES

Governance

- Implement a standardized and coordinated approach to inventory assessment and the management of fish populations and habitat
- Develop information management systems to ensure stock and angler assessment information is maintained and accessible
- Research new methods for assessment and monitoring and adopt as appropriate
- Simplify provincial regulatory regimes to meet client and conservation needs
- Implement regulatory regimes on individual lakes, when necessary, that conserve wild stocks and optimize recreational fishery values

Fish & Habitat Conservation

- Implement a systematic sampling program to assess lake status and monitor trends in fish stocks and their habitat
- Develop models and management strategies to optimize harvest rates for wild stocks
- Identify foreshore development and waste disposal issues and develop partnerships to address these concerns
- Identify limiting factors in tributaries that support spawning and early rearing
- Support the development of restoration plans with stewardship groups as appropriate
- Develop partnerships to restore the nutrient balance in lakes where this is an issue

Recreation

- Develop fisheries management plans to optimize sustainable angling opportunities in a manner that is consistent with market research assessments
- Develop marketing plans for large lakes fisheries (new or existing) and promote their sustainable use
- Investigate new opportunities and evaluate the success of stocking programs in terms of fish performance, angler catch rates and angler satisfaction

PRIORITIES &
ACTION PLANS

Small lakes action plan summary

Small lakes are a key component of the Province's aquatic ecosystems and support a wide range of biodiversity values and wild stocks. Small lakes also support the majority of angling effort in the Province, much of which is based on hatchery programs that stock around 9 million fish annually (the largest component of the hatchery program).

KEY ISSUES

- There is limited understanding of the status of the small lakes fish resource, province-wide
- There is no provincial–level approach to assessment or management of small lakes fisheries
- Competing land-use issues (e.g. water withdrawal) and invasive species may reduce the viability of many fisheries
- Angler participation is declining provincially

SUCCESS MEASURES

- Number of licenced anglers is increased by 30% (over 2004-05) by 2015
- Angler satisfaction and participation in small lake fisheries is increased
- A representative number of stocked and wild lakes are assessed and reported annually
- An integrated small lakes fisheries management approach is adopted with simplified-based regulations

Small lakes play an important role in B.C.'s economy, supporting 70% of freshwater angling activities, which is equivalent to approximately $350 million on an annual basis. Thus, declining angler participation and licence purchases have both direct and indirect consequences on regions and on the Province as a whole.

Currently there are 220,000 small lakes in the Province. This increases the need for an integrated approach (versus an individual lake approach) to managing these important habitats and sport fisheries.

ACTIVITIES

Governance

- Implement a coordinated and integrated approach to the management of fish populations and habitat
- Simplify provincial sport fishing regulatory regimes to meet client and conservation needs
- Complete and implement a policy to guide stocking activities across regions

Fish & Habitat Conservation

- Prioritize and address water supply issues and other limiting factors to enhance habitat quality and primary productivity
- Implement a systematic monitoring program to assess trends in fish populations and their habitat
- Assess angling effort and adjust angling regulations to maintain sustainable harvest rates on wild stocks and optimize management strategies on stocked lakes
- Evaluate inventory and stock assessment techniques, research new assessment methodologies and consolidate fish and habitat data, where appropriate
- Use a provincially-approved method to map ecosystem and fishery resources across regions

Recreation

- Deliver stocking programs that optimize angling opportunities, consistent with conservation goals
- Evaluate client preferences as a key input to management approaches
- Promote use of small lakes through targeted marketing programs
- Evaluate the success of stocking programs in terms of fish performance, angler catch rates, client satisfaction and cost/benefit analyses
- Optimize the use and accessibility of fisheries inventory data by the public

PRIORITIES &
ACTION PLANS

Rivers management action plan summary

B.C. has jurisdictional responsibility for freshwater fish, including anadromous (sea-run) forms of trout and char such as steelhead, coastal cutthroat trout and Dolly Varden while DFO is responsible for managing salmon and marine (saltwater) species. Managing fisheries where salmon and freshwater species co-occur requires collaboration and cooperation between federal and provincial agencies.

KEY ISSUES

- Changes in climate and marine conditions are negatively affecting anadromous and river resident populations
- There is a lack of information about some river fish species (e.g. Dolly Varden, bull trout, cutthroat trout), these species appear to be in decline in some regions
- High participation in some river fisheries is resulting in angling use conflicts due to crowding
- Riverine fish species tend to have variable productivity and are technically difficult to manage
- Steelhead abundance trends vary across B.C.; this results in differing management objectives and activities between regions giving the impression of an inconsistent approach
- Loss of access to rivers has reduced angling opportunities in some areas
- Public misunderstanding of the role of hatchery fish confounds management objectives
- Habitat impacts are increasing across the distribution of riverine species reducing their productivity

SUCCESS MEASURES

- Angling management plans for quality waters (Quality Waters Strategy) are completed
- Recover steelhead populations to a level where angling opportunities can be restored
- River-angling participation and satisfaction is increased
- Steelhead Stream Classification Policy is implemented and objectives are met

Why

THERE IS A NEED FOR ACTION

B.C. is a world renowned fishing destination. It is home to significant recreational and commercial fishing economies that depend on sustainable river fisheries. Some areas of the Province do not support sustainable fisheries, and in particular, show declining or at-risk fish populations (e.g. steelhead). In addition, few inland rivers support an abundant fish supply; as such, rivers require a more conservative management approach to ensure sustainability.

ACTIVITIES

Governance

- Use structured support and decision making to resolve major conflicts, improve management outcomes, and increase public confidence
- Review existing regulations to simplify and assess effectiveness in an effort to increase angler compliance
- Work with First Nations, DFO, U.S. agencies and commercial fisheries to initiate harvest management planning, where necessary
- Implement Steelhead Stream Classification Policy (SSCP) and the Quality Water Strategy (QWS)
- Improve data quality and presentation techniques to more effectively communicate Program objectives

Fish & Habitat Conservation

- Establish province-wide, standard methods for stock assessment, habitat inventory, and species conservation objectives
- Identify current and future research needs (e.g. ocean productivity, marine survival, climate change, biostandards and hatchery interactions)
- Conduct stock assessments and stock status evaluations for priority species and stocks
- Develop and evaluate watershed restoration prescriptions for priority species, stocks, and management plans
- Integrate species and watershed plans to achieve regional and provincial objectives (e.g. watershed fish sustainability plans)
- Establish partnerships with agencies that have fish habitat stewardship responsibilities (e.g. municipalities, regional districts, provincial/federal agencies)

Recreation

- Conduct and incorporate user preference surveys to guide decisions around priority species management and the provision of sustainable fishing opportunities
- Identify steelhead enhancement opportunities using the SSCP
- Include a riverine species component in sport fishing marketing and promotion initiatives
- Assess effectiveness of Steelhead Harvest Analysis for monitoring wild and stocked systems and revise methods as necessary to continue with annual use and harvest monitoring
- Where hatchery programs currently exist, undertake effectiveness monitoring using provincially approved performance measures

PRIORITIES & ACTION PLANS

Sport fisheries renewal action plan summary

Revenue generated through freshwater angling licence sales are directed back into maintaining and enhancing sport fisheries through the Freshwater Fisheries Society of B.C. stocking programs and the Habitat Conservation Trust Fund (HCTF).

KEY ISSUES

- Cultural inexperience with sport fishing and complexity of the regulations (including licensing) can make entry into the sport daunting
- There is currently no significant data on the present or potential angling client base
- The paper licensing system makes evaluation or surveys of existing anglers costly and inefficient
- Increased promotion and marketing of other recreational activities is a competitive factor in declining angler participation

SUCCESS MEASURES

- Number of licenced anglers is increased by 30% (over 2004-05) by 2015
- Numbers of juveniles and young adults participating in angling is increased
- Current angler population is retained and lapsed anglers are 'recoved'
- Long-term funding to support promotion and marketing programs is secured

THERE IS A NEED FOR ACTION

Freshwater recreational fisheries and associated activities are an important component of B.C.'s economy, representing approximately $500M in economic activity. In the last 10 years, angling licence sales have declined by 30%. Population increases in B.C. have not corresponded to additional licence sales; similar declines have been experienced by other fisheries jurisdictions and several have been successful at reversing this decline.

Declining revenues will affect the Program's ability to maintain and enhance sport fishing opportunities through restoration programs sponsored by the Habitat Conservation Trust Fund (HCTF) and stocking programs provided by the FFSBC. Fishing is a healthy outdoor pursuit that has to be seen as accessible to new entrants if it is to compete with other recreational activities as a leisure activity of choice.

ACTIVITIES

Governance

- Simplify sport fishing regulations to lower a potential barrier to new anglers and, where possible, respond to client preferences
- Develop education programs to promote understanding of and compliance with angling regulations
- Undertake research (literature review, gap analysis, research plan) to understand client preferences and support the development of a marketing plan to achieve market retention (re-adoption), recruitment and compliance objectives
- Enable the electronic purchasing of fishing licences and as part of this activity, build in the functionality to capture market/customer information

Fish & Habitat Conservation

- Collaborate with provincial and federal fisheries management and tourism agencies to deliver consistent messages to stakeholders around the importance of fish and fish habitats
- Liaise with tourism associations and sport fishing industry representatives so that they are informed of key messaging regarding the value of fish and fish habitat
- Undertake monitoring activities to ensure sport fish renewal initiatives activities are sustaining wild stocks

Recreation

- Develop and deliver 'Learn to Fish' and youth-oriented programs in schools, municipalities and through other partners
- Develop specific communication tools and programs to recruit new anglers from diverse cultural groups (e.g. regional fishing guides)
- Work with partners to increase access to fishing opportunities (e.g. trails, roads, fishing piers, docks and boat launches)
- Create and maintain contact with angling clients and stewardship groups to identify ongoing needs and barriers
- Identify and develop new fishery opportunities and products to meet client needs such as the development of fishing ponds in urban areas
- Identify new opportunities for sport fish development flowing from regional lake and stream management plans
- Implement provincial marketing and promotion plan based on results of market research
- Secure corporate sponsorship to support fisheries promotion and educational activities

PRIORITIES & ACTION PLANS

Invasive species management action plan summary

Invasive species are species either not native to British Columbia, or not native to major watersheds. These species can become established, spread and negatively impact native fish populations.

KEY ISSUES

- Current provincial management of non-native sport fisheries is inconsistent across regions, sending confusing message to the public and First Nations regarding the seriousness of invasive threats
- Several pathways for introductions of invasive species, including unauthorized introductions intended to create fisheries, and pet and live food industries that may import potentially invasive fish species do not have effective guidelines or regulations
- Current statutes and regulations appear to be ineffective in reducing or preventing unauthorized introductions of non-native fish
- There is a significant threat to various angling opportunities and native biodiversity
- There has been an increased occurrence of unauthorized introductions recorded and some have spread to additional waters
- The number of freshwater systems in B.C. containing invasive fish species is growing; at least 20 new species reported to date

SUCCESS MEASURES

- New introductions of non-native species are reduced or eliminated
- Public, industry, and stakeholders are better informed with respect to biodiversity values and understand the threats of invasive species
- Successful control or removal programs in high-priority water bodies are completed
- Policy and other regulatory tools on the management of invasive species are established

Invasive species have been identified as the second greatest threat to global biodiversity after habitat loss. In B.C., significant resources have been invested to provide high quality angling opportunities based on native species; introductions of invasive species pose a significant threat to this recreational activity as well as the commercial fishing industry.

Eradication of established populations of invasive species is often cost-prohibitive or impossible; therefore, focus must be on prevention and rapid response. 'Status quo' control and management approaches for non-native species have not been effective and the need for change is evident.

ACTIVITIES

Governance

- Develop a policy and approach on the management and control of invasive fish
- Develop a prevention strategy aimed at improving compliance with statutes and regulations regarding import and transfer of live fish into new water bodies
- Assemble a toolbox of eradication/control options and test effectiveness via pilot studies
- Monitor pathways of introduction to determine where priority compliance issues exist

Fish & Habitat Conservation

- Develop early detection and rapid response mechanisms to eradicate, where appropriate, invasive species as quickly as possible
- Develop well-advertised disincentive programs, education and enforcement to further reduce spread of invasive species
- Maintain a provincial database of non-native freshwater fish species distribution
- Identify key areas where invasive species pose the greatest threat to native biodiversity
- Develop options criteria (when eradication is not possible) to determine the best method to protect native biodiversity (e.g. modified angling regulations)
- Develop public consultation/communications package regarding key eradication tools

Recreation

- Provide supporting educational materials and a communication package to foster a sense of community ownership and stewardship of native biodiversity and to discourage activities such as illegally introducing sport fish
- Manage established non-native species to provide angling opportunities where risks to biodiversity are low and, recovery is not feasible, or where angling may be the best option for controlling population expansion of the invasive species

Resource assessment action plan summary

Resource assessment involves data gathering and analysis to identify the status and capacity of the fish resource and its supporting habitats, which in turn enables effective management decisions. Additionally, this action plan includes the assessment of the fisheries and the users of the resource.

KEY ISSUES

- Current inventory data is becoming dated and existing data cannot be adequately maintained
- Quality and accessibility of data needs to be improved – data is not readily accessible by fisheries managers or other users
- Data collection and management standards are incomplete
- The ability to validate information or to generalize from specific data, using simulation models or other tools, is limited (due to the large landscape and expense of gathering data, the ability to generalize and extrapolate is critical)
- Economic pressure for development is increasing but the ability to perform proper resource assessments is not keeping pace

SUCCESS MEASURES

- Delivery framework for species/ habitat resource assessments is developed
- Longer term funding and partnerships to implement assessments secured
- Standards, guidelines and appropriate management information is complete and available, where practical
- Ability of improved assessments on the description, status and trends of priority species and populations is demonstrated

A robust resource assessment program and the use of appropriate scientific information in decision making will enhance the Freshwater Fisheries Program's credibility among stakeholders. This information will also support decisions around management and protection of fish populations and habitats, and assist with the appropriate allocation of limited resources. In addition, quality resource information improves the likelihood of meeting management objectives without being overly precautionary.

ACTIVITIES

Governance

- Develop policy and delivery framework for resource assessment
- Identify needs and develop and maintain standards and guidelines for resource assessment
- Use standards and guidelines to improve communication around the inputs into resource assessment
- Develop and deliver training component for policy and standards
- Develop resource assessment plans (e.g. index population sites)
- Identify and develop business case to acquire funds (internal/external) to perform resource assessments
- Develop and foster partnerships for delivery of resource assessments
- Improve coordination and efficiency between science/inventory and monitoring/data collection to arrive at better decisions

Fish & Habitat Conservation

- Identify provincial priorities for resource assessment and develop plans accordingly
- Compile and build appropriate predictive models for habitat capacity and habitat supply
- Define the indicators and parameters to assess the status of priority fish species and their habitats

Recreation

- Define the information needed to assess angler and stakeholder preferences
- Improve data gathering around angler activity and success information

Conclusion

The Freshwater Fisheries Program Plan is the culmination of the collective efforts of many individuals from across the Province. The Plan illustrates the depth and breadth of issues facing fish and fish habitat managers and establishes a clear set of priorities for action. As such, the plan forms the foundation for our collective efforts to deliver a consolidated Freshwater Fisheries Program and will guide our future operational direction.

There are many components involved in the delivery of an effective fisheries program. Not only do issues span across regional and provincial boundaries but the delivery of the Plan relies extensively on external funding and resource availability within the Division. Therefore success in the Program delivery will require commitment, cooperation and coordination from all those involved in carrying it forward.

Our Aim, **'a naturally rich and sustainable freshwater fish resource supporting diverse uses for all British Columbians'** is a commitment to taking a leadership role in managing the freshwater fish resource for the benefit of present and future generations.

Linkages to other federal, provincial and external strategies

FEDERAL

The Department of Fisheries and Oceans (DFO) manages First Nation fisheries, commercial and recreational fisheries in tidal waters, salmon fisheries in non-tidal waters, and has the lead responsibility for fish habitat protection. The Province of British Columbia manages non-tidal fisheries, including sea-run steelhead, cutthroat, and Dolly Varden, and also has responsibility for water management and land-based activities such as forest harvesting, which can have an influence on fish habitat. This creates a key jurisdictional overlap, especially in watersheds where both salmon and freshwater species coexist. Therefore, there is an inevitable link and need for coordination between federal and provincial agencies in terms of managing fisheries and fish habitat.

The Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) and the Pacific Council of Fisheries and Aquaculture Ministers (PCFAM) each provide a forum for federal-provincial discussions on policy matters at a national and bilateral level, respectively. These councils have established a variety of federal/provincial task groups to address key issues such as recreational fisheries, invasive species and species at risk.

LINKAGES

Department of Fisheries and Oceans

- The management and protection of fish habitat
- Environmental assessment and compensation planning for major projects
- Watershed or water-use planning for management or restoration
- Information needs and use related to stocks, habitat and watershed health
- Management of recreational fisheries in freshwater where salmon and freshwater species coexist
- Management of commercial and First Nations fisheries where provincial managed stocks may be harvested as by-catch
- Species at risk identification and recovery planning
- Implementation of the federal Wild Salmon Policy

PROVINCIAL

Provincially, sectors such as hydroelectric, oil and gas, forestry and agriculture and the necessary transportation network required to support these sectors means that each of the four resource Ministries (Environment, Energy, Mines, and Petroleum Resources, Forestry, and Agriculture and Lands) has an interest in how British Columbia fisheries are managed. This requires a coordinated and integrated fisheries management strategy to ensure the habitats and watersheds the subsequent industries utilize are managed in a sustainable way. In addition, the Ministry of Tourism, Sport and Arts supports the development and promotion of B.C.'s great fisheries-based recreational opportunities.

LINKAGES

Ministry of Forests and Range

- Policies, standards and legislation to protect key aquatic values on Crown forest lands, such as riparian areas provisions of the Forest and Range Practices Act or the stream crossing guidelines
- MoE can designate Temperature Sensitive Streams (to maintain temperature on small streams) and Fisheries Sensitive Watersheds (to avoid cumulative hydrological impacts) which guides forest development plans approved by Ministry of Forests and Range (MoFR)
- SAR that are dependent on the forest environment can be designated and protected through general wildlife measures or the designation of Wildlife Habitat Areas

Ministry of Energy, Mines, and Petroleum Resources

- Aquatic values are identified during mine development proposals
- Protection of aquatic values during linear developments are addressed by policies and legislation in the same manner as that on Crown forest land

Ministry of Agriculture and Lands

- Environmental farm planning
- Agricultural standards and guidelines related to riparian protection and farm runoff
- Aquaculture standards and guidelines for rearing operations and transportation
- Incorporation of aquatic values into land-use planning processes
- SARCO - species at risk framework development and implementation

NKAGES

Ministry of Transportation	• Stream-crossing guidelines • Funding established to restore fish access on historic stream crossings
Ministry of Tourism, Sport, and Arts	• Marketing and promotion of sport fishing opportunities • Sportfish renewal
BC Hydro and BC Transmission Corporation (BCTC)	• Partnership on the delivery of compensation programs for 'footprint' impacts in the Columbia, Peace and Bridge/Coastal watersheds • Delivery of Water Use Plans for all facilities include monitoring and assessment programs • Develop and implement improved work practices associated with transmission corridors
Union of BC Municipalities (UBCM)	• Land development guidelines • Implementation of the Riparian Areas Regulation
Ministry of Aboriginal Relations and Reconciliation	• Provide policy and scientific support for government to government discussions with First Nations and Treaty Negotiations
Ministry of Health	• Provide policy and technical support to Ministry of Health with respect to issues related to human health from consumption of fish • Participate in 'ActNow Program' and promote health benefits of angling

FUNDING AND EXTERNAL PARTNERS

External organizations play an important role in the management and conservation of our fisheries resource by providing investments in species, habitat and watershed conservation. Our principle funding partners include Living Rivers Trust Fund, Habitat Conservation Trust Fund, and Pacific Salmon Endowment Fund. We also work with many NGOs with a variety of expertise and interests to develop and deliver programs.

LINKAGES

Living Rivers Trust Fund

- The Living Rivers Trust Fund was established in 2002 by the provincial government to protect, improve and restore B.C.'s rivers and waterways using scientifically based standards, enhancements to fish habitat, and a 10-year program to correct past damage
- The fund will be used for projects to improve understanding of B.C.'s watersheds, increase public awareness, strengthen partnerships and enhance the effectiveness of community organizations

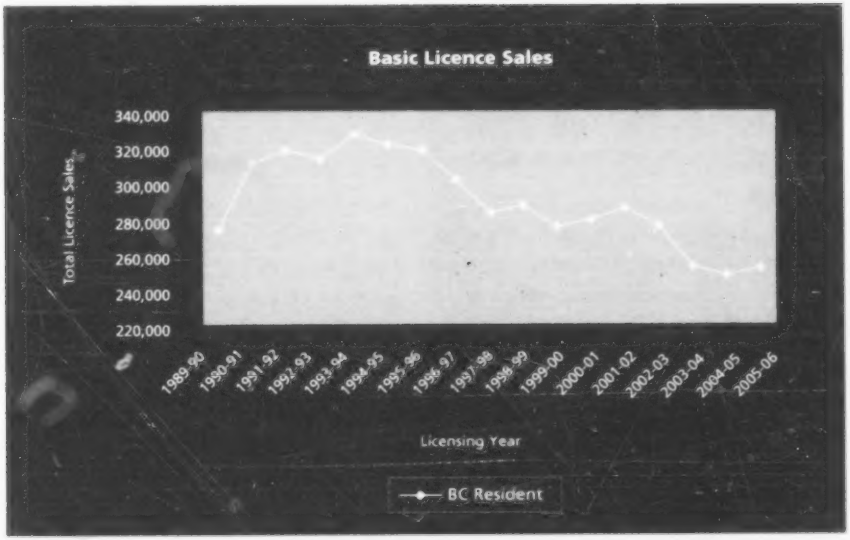
Habitat Conservation Trust Fund

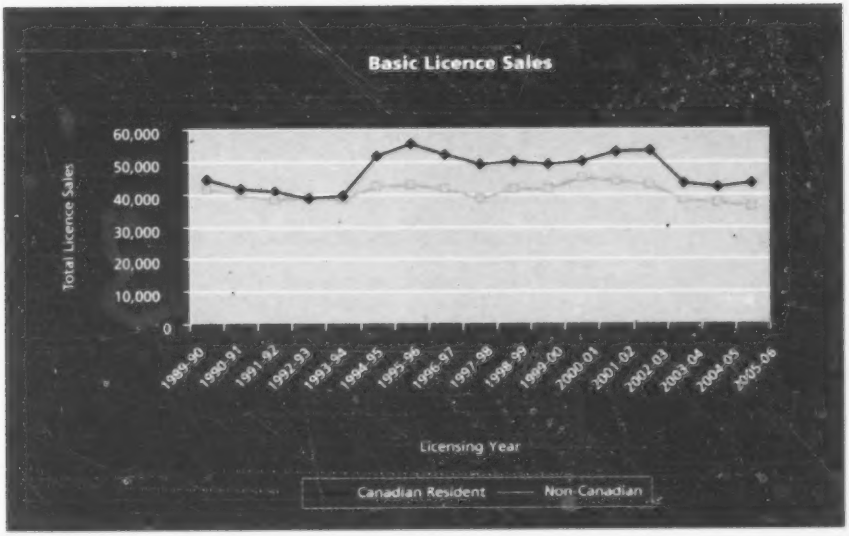
- The HCTF was created in 1996 and is funded primarily by hunters, anglers, trappers and guide-outfitters that contribute to the Trust Funds' enhancement and education projects through licence surcharges
- The mission of the HCTF is to invest in projects that maintain and enhance the health and biological diversity of British Columbia's fish, wildlife, and habitats.

Pacific Salmon Endowment Fund

- Pacific Salmon Endowment Fund is the first-ever long-term funding mechanism designed to achieve sustainable salmon stocks in British Columbia and the Yukon
- A non-profit society - the Pacific Salmon Endowment Fund Society (PSEFS) - was established to act as the custodian of the endowment and to set program priorities
- The Society appointed the Pacific Salmon Foundation as the program manager and the Vancouver Foundation as the fund's steward

Licence sale information





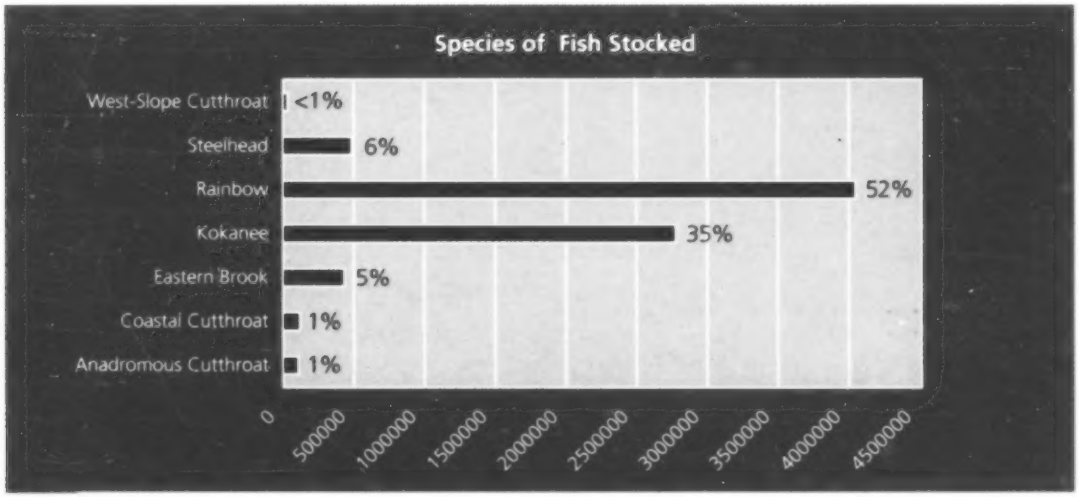
Freshwater Fisheries Society B.C. (FFSBC)

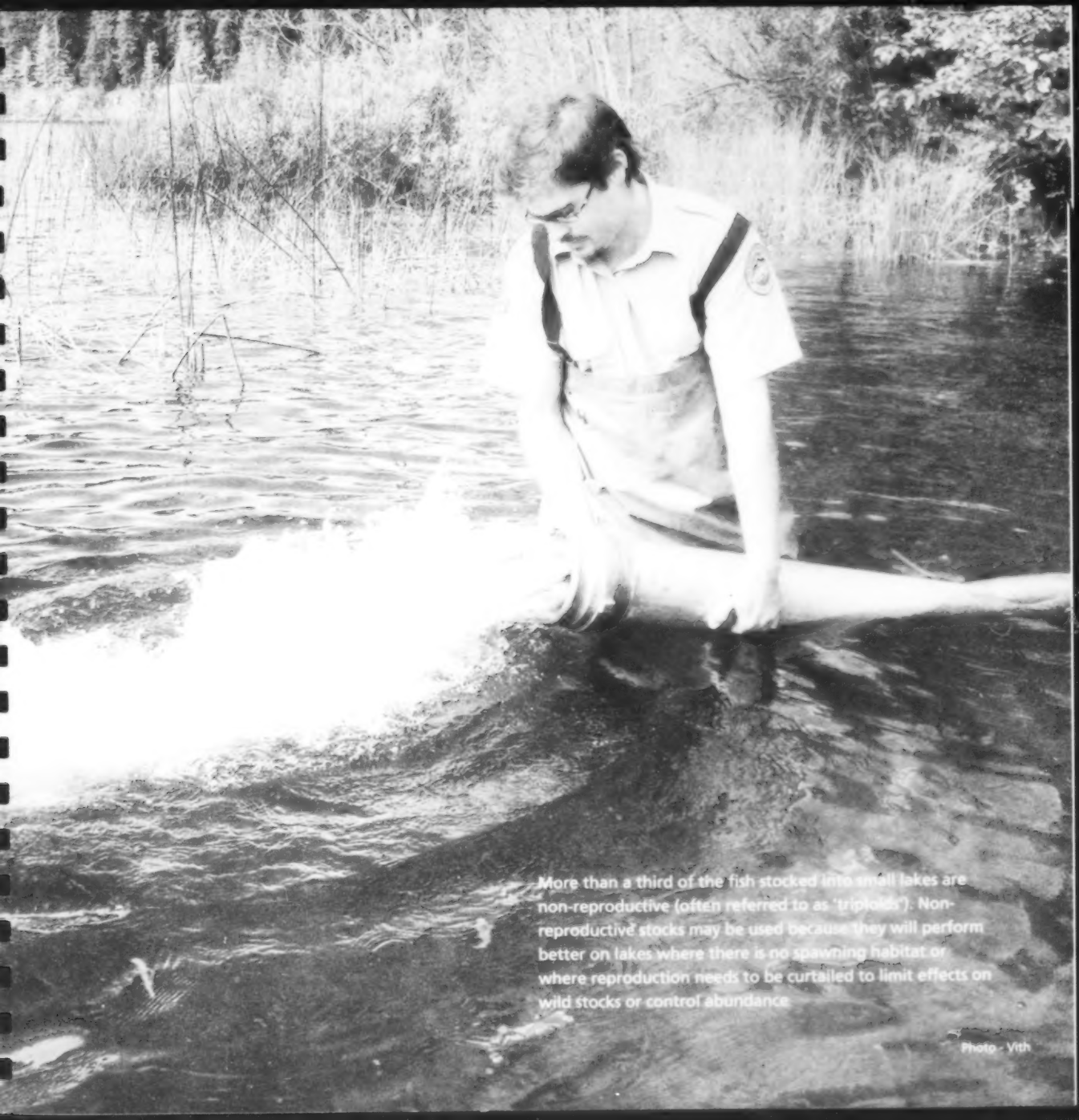
www.gofishbc.com

The Freshwater Fisheries Society of B.C. (FFSBC) is a non-profit society, created in 2003 to deliver fish culture services in partnership with the Ministry of Environment. FFSBC annually stocks approximately 1000 lakes and streams and provides conservation fish culture services to support the recovery of endangered fish species (see Table on page 64-65). The mission of FFSBC is to build the best freshwater fisheries in North America.

The B.C. stocking program is unique in North America because of the almost exclusive use of wild brood stocks to provide eggs for the stocking program. These stocking programs that are operated by other fisheries agencies tend to focus on collecting eggs from domesticated brood stocks that are raised at the hatchery. Domestication selects for animals that exhibit fast growth and high survival in the hatchery environment, however, domestic stocks often perform poorly when released into the wild. The stocking program in B.C. utilizes a variety of wild-type strains of fish that are maintained in wild broodstock lakes such as Pennask, Dragon, Tunkwa and Premier lakes. These wild-type strains have certain desirable characteristics which make them well suited for B.C.'s abundant and varied lakes. Fisheries biologists take these strain characteristics into account in matching the strains to the lakes being stocked. As well, a number of domesticated rainbow are released as catchable-sized fish into unproductive urban lakes where the only hope of providing a harvestable product is by using catchable-sized fish.

Rainbow trout is the most heavily stocked species in B.C., followed by kokanee, and steelhead. Stocks have different attributes that can be tailored to best fit specific habitat and environment





More than a third of the fish stocked into small lakes are non-reproductive (often referred to as 'triploids'). Non-reproductive stocks may be used because they will perform better on lakes where there is no spawning habitat or where reproduction needs to be curtailed to limit effects on wild stocks or control abundance.

Photo - Yith

Species at Risk

The following is a table of the provincial freshwater fish species at risk, including status designations at the provincial, national and global level. Note that three federally managed salmon stocks that have been evaluated by COSEWIC are also included given their significant freshwater residency.

For more information on listing processes for various agencies please refer to:

CDC: http://www.env.gov.bc.ca/atrisk/toolintro.html
COSEWIC: http:///www.cosewic.gc.ca
SARA: http://www.sararegistry.gc.ca/default_e.cfm

FAMILY & NAME	Provincial		National				Global
			COSEWIC		SARA		
	CDC	IWMS	Status	Date Designated	Legally Listed	Date listed	Nature Serve
FISHES							
Lampreys - Petromyzonidae							
Cowichan Lake Lamprey (also called Vancouver Lamprey)	S1		T	Nov-00	Y	Jun-03	G1
Western Brook Lamprey (Morrison Creek Population)	S1		E	May-00	Y	Jun-03	G4G5T1Q
Sturgeon - Acipenseridae							
White Sturgeon	S2		E	Nov-03			G4
White Sturgeon (Kootenay River Population)	S1				Y	Aug-06	G4T1Q
White Sturgeon (Columbia River Population)	S1				Y	Aug-06	G4T3T4Q
White Sturgeon (Nechako River Population)	S1				Y	Aug-06	G4T1Q
White Sturgeon (Lower Fraser River Population)	S2				NL	declined	G4T2Q
White Sturgeon (Upper Fraser River Population)	S1				Y	Aug-06	G4T1Q
White Sturgeon (Middle Fraser River Population)	S1				NL	declined	G4T1Q
Green Sturgeon	S1N		SC	May-87	Y	Aug-06	G3
Grayling - Thymalidae							
Arctic Grayling (Williston Watershed Population)	S1						

FAMILY & NAME	Provincial		National				Global
			COSEWIC		SARA		
	CDC	IWMS	Status	Date Designated	Legally Listed	Date listed	Nature Serve
Whitefish - Coregonidae							
Least Cisco	S2S3						G5
Inconnu	S3						G5
Dragon Lake Whitefish	SX						GX
Cisco	S1						G5
Arctic Cisco	S1						G5
Broad Whitefish	S1						G5
Trout - Salmonidae							
Cutthroat Trout, Clarkii (coastal) Subspecies	S3S4						G4T4
Cutthroat Trout, Lewisi (westslope) Subspecies	S3	Y	SC	May-05			G4T3
Coho Salmon (Interior Fraser population)			E	May-02	UC		
Sockeye Salmon (Cultus Lake population)			E	May-03	NL	declined	
Sockeye Salmon (Sakinaw Lake population)			E	May-03	NL	declined	
Bull Trout	S3	Y					G3
Doliy Varden	S3S4						G5
Smelts - Osmeridae							
Eulachon	S2S3						G5
Pygmy Longfin Smelt	S1		DD	Nov-04			G1Q
Mooneyes - Hiodontidae							
Goldeye	S3						G5
Minnows - Cyprinidae							
Chiselmouth	S3S4		NAR	May-03			G5
Pearl Dace	S3?						G5
Emerald Shiner	S1						G5
Spottail Shiner	S1S2						G5
Speckled Dace	S1		E	Apr-06			G5
Nooksack Dace	S1		E	May-00	Y	Jun-03	G3
Umatilla Dace	S2		SC	May-88	UC - Sched 3		G4

Species at Risk

The following is a table of the provincial freshwater fish species at risk, including status designations at the provincial, national and global level. Note that three federally managed salmon stocks that have been evaluated by COSEWIC are also included given their significant freshwater residency.

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SARA: http://www.sararegistry.gc.ca/default_e.cfm

FAMILY & NAME	Provincial		National				Global
			COSEWIC		SARA		
	CDC	IWMS	Status	Date Designated	Legally Listed	Date listed	Nature Serve
FISHES							
Lampreys - Petromyzonidae							
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Western Brook Lamprey (Morrison Creek Population)	S1			May-00	Y	Jun-03	G4G5T1Q
Sturgeon - Acipenseridae							
White Sturgeon	S2			Nov-03			G4
White Sturgeon (Kootenay River Population)	S1				Y	Aug-06	G4T1Q
White Sturgeon (Columbia River Population)	S1				Y	Aug-06	G4T3T4Q
White Sturgeon (Nechako River Population)	S1				Y	Aug-06	G4T1Q
White Sturgeon (Lower Fraser River Population)	S2				NL	declined	G4T2Q
White Sturgeon (Upper Fraser River Population)	S1				Y	Aug-06	G4T1Q
White Sturgeon (Middle Fraser River Population)	S1				NL	declined	G4T1Q
Green Sturgeon	S1N			May-87	Y	Aug-06	G3
Grayling - Thymalidae							
Arctic Grayling (Williston Watershed Population)	S1						

FAMILY & NAME	Provincial		National				Global
			COSEWIC		SARA		
	CDC	IWMS	Status	Date Designated	Legally Listed	Date listed	Nature Serve
Whitefish - Coregonidae							
Least Cisco	S2S3						G5
Inconnu	S3						G5
Dragon Lake Whitefish	SX						GX
Cisco	S1						G5
Arctic Cisco	S1						G5
Broad Whitefish	S1						G5
Trout - Salmonidae							
Cutthroat Trout, Clarkii (coastal) Subspecies	S3S4						G4T4
Cutthroat Trout, Lewisi (westslope) Subspecies	S3	Y	SC	May-05			G4T3
Coho Salmon (Interior Fraser population)			E	May-02	UC		
Sockeye Salmon (Cultus Lake population)			E	May-03	NL	declined	
Sockeye Salmon (Sakinaw Lake population)			E	May-03	NL	declined	
Bull Trout	S3	Y					G3
Dolly Varden	S3S4						G5
Smelts - Osmeridae							
Eulachon	S2S3						G5
Pygmy Longfin Smelt	S1		SC	Nov-04			G1Q
Mooneyes - Hiodontidae							
Goldeye	S3						G5
Minnows - Cyprinidae							
Chiselmouth	S3S4		NAR	May-03			G5
Pearl Dace	S3?						G5
Emerald Shiner	S1						G5
Spottail Shiner	S1S2						G5
Speckled Dace	S1		E	Apr-06			G5
Nooksack Dace	S1			May-00	Y	Jun-03	G3
Umatilla Dace	S2		E	May-88	UC Sched 3		G4

FAMILY & NAME	Provincial		National				Global
			COSEWIC		SARA		
	CDC	IWMS	Status	Date Designated	Legally Listed	Date listed	Nature Serve
Suckers - Catastomidae							
Mountain Sucker	S3?		NAR	May-91			G5
Salish Sucker	S1		E	Nov-02	Y	Jan-05	G1
Cods - Gadidae							
Burbot (Lower Kootenay Population)	S1						G5T1Q
Sticklebacks - Gasterosteidae							
Hadley Lake Limnetic Stickleback	SX		XX	May-00			GX
Hadley Lake Benthic Stickleback	SX		XX	May-00			GX
Charlotte Unarmoured Stickleback	S2		SC	May-83	UC - Sched 3		G5TNR
Giant Black Stickleback	S1		SC	May-80			G1
Vananda Creek Limnetic Stickleback	S1	Y	E	May-00	Y	Jun-03	G1
Vananda Creek Benthic Stickleback	S1	Y	E	May-00	Y	Jun-03	G1
Misty Lake "Lake" Stickleback	S1						GNR
Misty Lake "Stream" Stickleback	S1						GNR
Enos Lake Limnetic Stickleback	S1		E	Nov-02	Y	Jan-05	G1
Enos Lake Benthic Stickleback	S1		E	Nov-02	Y	Jan-05	G1
Paxton Lake Limnetic Stickleback	S1		E	May-00	Y	Jun-03	G1
Paxton Lake Benthic Stickleback	S1		E	May-00	Y	Jun-03	G1
Ninespine Stickleback	S1						G5
Sculpins - Cottidae							
Sculpin species - Flathead population	S2S3						G5TNR
Shorthead Sculpin	S2S3		T	May-01	Y	Jun-03	G5
Columbia Sculpin	S3		SC	May-00	Y	Jun-03	G4Q
Cultus Pygmy Sculpin	S1		T	Nov-00	Y	Jun-03	G1

BC LIST *CDC assigns colour based on 'S' rank

EXTINCT	Species or ecological communities that no longer exist.
RED	Indigenous species, or subspecies that have- or are candidates for- Extirpated, Endangered, or Threatened status in British Columbia.
BLUE	Indigenous species or subspecies considered to be of Special Concern (formerly Vulnerable) in British Columbia.
NO STATUS	When all subspecies or populations of a species are assigned to either the Red List or the Blue List, the species will not be assigned to a List.

IWMS

Y - The species is recognized as Identified Wildlife under the Forest and Range Practices Act.

COSEWIC

XX **EXTINCT:** A species that no longer exists.
XT **EXTIRPATED:** A species that no longer exists in the wild in Canada, but occurring elsewhere.
E **ENDANGERED:** A species facing imminent extirpation or extinction.
T **THREATENED:** A species that is likely to become endangered if limiting factors are not reversed.
SC **SPECIAL CONCERN:** A species of special concern because of characteristics that make it is particularly sensitive to human activities or natural events.
NAR **NOT AT RISK:** A species that has been evaluated and found to be not at risk.
DD **DATA DEFICIENT:** A species for which there is insufficient scientific information to support status designation.

SARA *legal listing and date listed

Y - species is listed Schedule I of SARA based on status assigned by COSEWIC.
UC - 'Under Consideration': species has been designated by COSEWIC, may exist on SARA schedule 2 or 3, and legal listing is under consideration.
NL- Not Listed: species was considered for legal listing under Schedule 1 of SARA based on COSEWIC status but was declined for various reasons.

Coding for the 'S' and 'G' ranks

The ***Conservation Data Centre*** determines the 'S' (Sub-national / provincial) rank based on species' conservation status in British Columbia, and ***Nature Serve*** determines 'G' rank based on a species' status across its entire range.

1 = critically imperiled
2 = imperiled
3 = special concern, vulnerable to extirpation or extinction
4 = apparently secure
5 = demonstrably widespread, abundant, and secure
X = extirpated

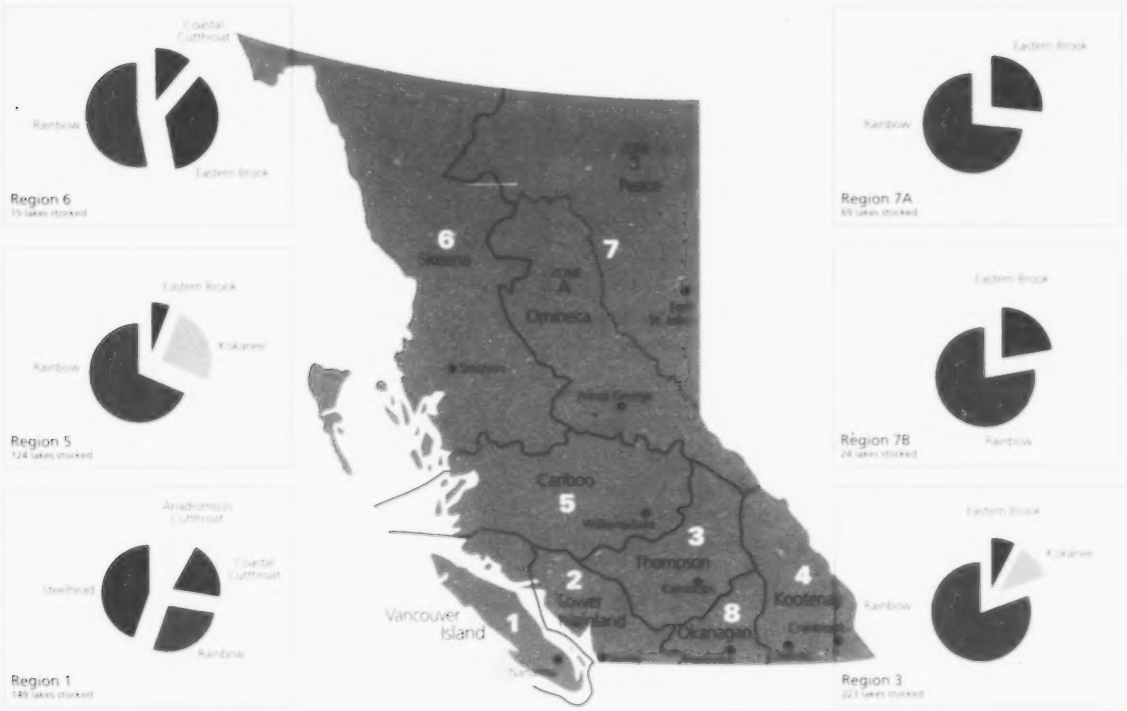
H = historic records only; possibly extirpated
S#S# or '?' = indicates uncertainty around status
N = non-breeding status in B.C.
T = intraspecific taxon rank
NR = unranked - Global Rank not yet assessed
Q = questional taxonomy

Species stocked by region

The Freshwater Fisheries Society (FFSBC) stocks nearly 8 million fish across 1,000 lakes and streams in B.C. The charts below indicate the proportion of fish stocked in each region.

Species stocked by region

The Freshwater Fisheries Society (FFSBC) stocks nearly 8 million fish across 1,000 lakes and streams in B.C. The charts below indicate the proportion of fish stocked in each region.



Contact information

HEADQUARTERS

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www.env.gov.bc.ca/esd

UBC Office
Ministry of Environment
2202 Main Mall Room 315
Vancouver B.C. V6T 1Z4
Phone: 604-222-6750
Fax: 604-660-1849

REGIONS

Region 1 - Vancouver Island
2080-A Labieux Rd
Nanaimo B.C., V9T 6J9
Phone: 250-751-3100
Fax: 250-751-3103

Region 2 - Lower Mainland
200-10470 152nd St
Surrey B.C., V3R 0Y3
Phone: 604-582-5200
Fax: 604-582-5380

Region 3 - Thompson
1259 Dalhousie Drive
Kamloops B.C., V2C 5Z5
Phone: 250-371-6200
Fax: 250-371-6234

Region 4 - Kootenay
205 Industrial Road G.
Cranbrook B.C., V1C 7G5
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Fax: 250-489-8506

Region 5 - Cariboo
400 - 640 Borland St
Williams Lake B.C., V2G 4T1
Phone: 250-398-4530
Fax: 250-398-4214

Region 6 - Skeena
PO 5000
Smithers B.C., V0J 2N0
Phone: 250-847-7260
Fax: 250-847-7591

Region 7A - Omineca
4051-18th Ave
Prince George B.C., V2N 1B3
Phone: 250-565-6135
Fax: 250-565-6629

Region 7B - Peace
Room 400 - 10003 110th Ave
Fort St. John B.C., V1J 6M2
Phone: 250-787-3411
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Region 8 -Okanagan
102 Industrial Place
Penticton B.C., V2A 7C8
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Fax: 250-490-2231

FRESHWATER FISHERIES SOCIETY OF B.C. (FFSBC)

Suite 106 -2975 Jutland Road
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HATCHERY LOCATIONS

Vancouver Island Trout Hatchery	**250-746-5180**
Clearwater Trout Hatchery	**250-674-2580**
Fraser Valley Trout Hatchery	**640-504-4709**
Summerland Trout Hatchery	**250-494-0491**
Kooteney Trout Hatchery	**250-429-3214**

QP 4500156258